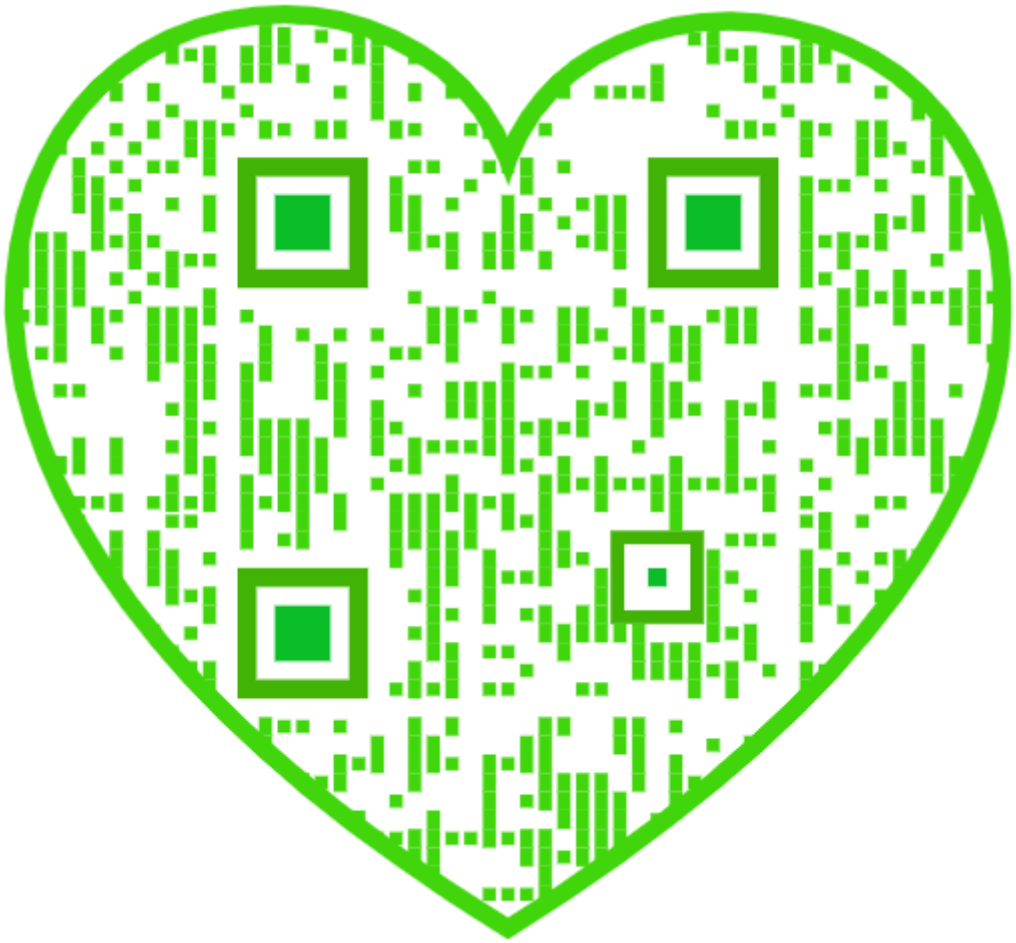
ESSENTIALS
OF
EQUINE AND BOVINE
MEDICINE AND SURGERY.

BY
WALTER LAWRENCE, V. S.



LIBRARY OF CONGRESS.

Chap. ..... Copyright Do. .....

Shelf ST151 .L27

UNITED STATES OF AMERICA.

Walter Langtry U.S

COPYRIGHTED, 1
ALL RIGHTS RESERVED

ESSENTIALS

OF THE

PRINCIPLES AND PRACTICE

OF

EQUINE AND BOVINE

MEDICINE AND SURGERY.

A HANDBOOK

FOR

FARMERS, MERCHANTS, MECHANICS, STUDENTS AND PRACTITIONERS;

CONTAINING

A TREATISE ON THE DISEASES OF HORSES AND CATTLE; THEIR CAUSES, SYMPTOMS, PREVENTION, AND CURE. ALSO THE LATEST AND MOST APPROVED METHODS OF DELIVERING COLTS AND CALVES.

10
4333

WITH 150 ILLUSTRATIONS.

LIBRARY OF CONGRESS
COPYRIGHT
NOV 9 1889
1812
WASHINGTON, D. C.

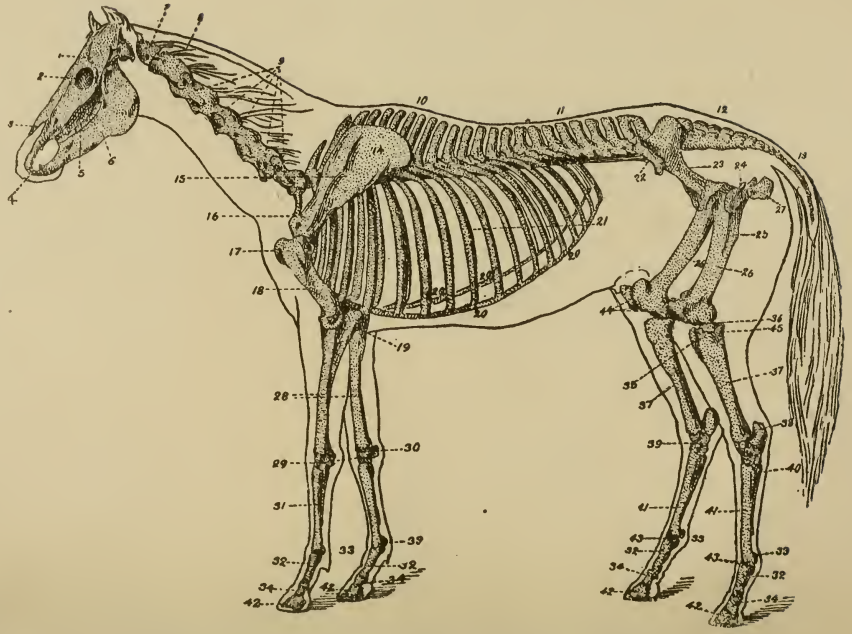
BY

WALTER LANGTRY, V. S.,

Graduate of the Ontario Veterinary College, Toronto, Canada.

COPYRIGHTED.
All Rights Reserved.

SF751
.L27



SKELETON OF THE FAMOUS RACE HORSE ECLIPSE.

EXPLANATION OF THE DIFFERENT PARTS OF THE SKELETON.

The figure on the opposite page is drawn from the skeleton of the famous race horse Eclipse, and is considered by Protessors Gamgee and Law, from whose work on veterinary anatomy it is copied, as anatomically pertect.

1. Zygomatic arch.
2. Orbital cavity.
3. Face bones.
4. Incisor teeth.
5. Molar teeth.
6. Lower Jaw.
7. Atlas, 1st vertebra of neck.
8. Axis, 2d vertebra of neck.
9. Cervical vertebræ (5).
10. Spinal processes of back.
11. Dorsal and lumbar veretbræ.
12. Sacrum.
13. Coccygeal or tail bones.
14. Scapula, or shoulder blade.
15. Acromion process.
16. Hollow of shoulder blade.
17. Superior tuberosity of the humerus.
18. Humerus, or arm bone.
19. Olecranon, or elbow bone.
20. Cartilages of the ribs.
21. Ribs.
22. Haunch, the external and anterior angle of the ilium.
23. Os innominatum, or Haunch bone.
24. Great trochanter.
25. Small trochanter.
26. Femur, or thigh bone.
27. Ischium, posterior angle of the ilium.
28. Radius, or fore-arm bone.
29. Carpal, or knee bones.
30. Trapezium.
31. Metacarpal, or Cannon bone.
32. Os suffraginis, or pastern bone.
33. Sesamoid bone.
34. Os coronæ, or small pastern Bone.
35. Superior tuberosity of the tibia.
36. Stifle joint.
37. Tibia, or leg bone.
38. Os calcis, or point of hock.
39. Tarsus, or Hock joint.
40. Head of small metatarsal bone.
41. Cannon, or metatarsal bone.
42. Hoof, or foot bone.
43 Fetlock joint.
44. Patella.
45. Fibula.

PRINCIPLES AND PRACTICE

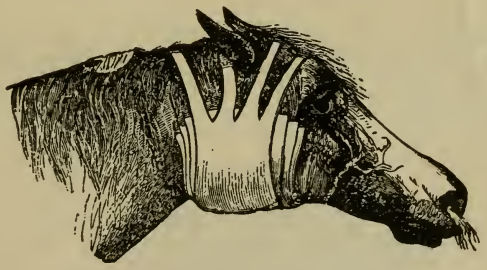
OF

EQUINE AND BOVINE

MEDICINE AND SURGERY.

DISTEMPER, OR STRANGLES.

This is a disease peculiar to the horse, but may be communicated to man by inoculation. It seldom attacks a horse after maturity, but attacks colts from birth until they are five



DISTEMPER, OR STRANGLES.

years old. The causes are many and varied. Among them are want of nutritious properties in the mother's milk; change from pasture to dry feed; irritation from teething; impure air; changes from one climate to another, etc.

Symptoms:—The colt will appear dull and stupid; the eyes will begin to water and sometimes to matter; fever begins to rise; loss of appetite; coat begins to get rough; discharge from the nostrils; abscesses begin to form under the lower jaw. In irregular strangles abscesses may form anywhere on the

body, or in the lungs or intestines, making the case very serious.

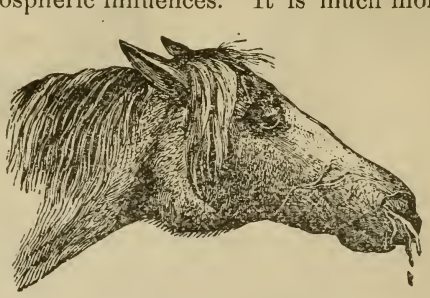
TREATMENT:—The treatment is very simple. In regular strangles place the animal in an airy, comfortable, loose box stall and bed well. Blanket comfortably and feed on soft food —such as bran-mashes, chopped feed, mashed turnips or carrots. If there is a dry cough steam the nostrils with scalded bran or oats, but do not *smoke* the colt. Poultice the throat with fried onions, boiled turnips or linseed meal; and when the abscesses soften lance them to allow the matter to escape. If the abscesses remain hard apply a good stimulating liniment or blister to them, and gargle the throat with the following:

Chlorate of Potassium, one ounce.
Nitrate of Potassium, one ounce.
Hypo-Sulphate of Soda, one ounce. Mix.

Make into twelve powders and give one powder every six hours.

EPIZOOTIC INFLUENZA.

This disease is very peculiar and yet not uncommon in this country. In 1871 it traveled from east to west with such rapidity that there is little reason to doubt that it is produced through atmospheric influences. It is much more dangerous

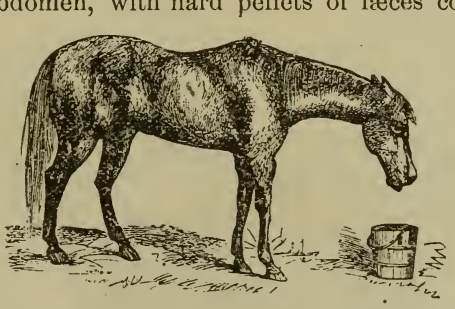


EPIZOOTIC INFLUENZA.

in some localities than in others, according to the hygienic measures employed. In localities that are low and malarious with poor stabling the disease is much more fatal than where the elevation is greater and the air dryer. But no location is

exempt from the disease. In the same stable a number of horse may be attacked, and very severely, while others remain perfectly healthy. Every horse in a given stable may be affected, while their neighbors in a stable across the street escape entirely. It is my opinion that horses poorly cared for and ill-fed are, not only first attacked, but the first to succumb.

SYMPTOMS:—The disease comes on very suddenly with weakness and stupor; eyes swelled and watery. The membranes of the nostrils may be of a bright pink color, but are more frequently of a dull leaden hue. There is dry cough; staring coat; ears and legs alternately hot and cold; patient is feverish; pulse accelerated—generally weak but sometimes hard; sometimes a watery discharge from the nostrils, afterwards assuming a yellowish or greenish color; appetite lost; when made to move will go with a swinging gait,—frequently crackling of the joints will be heard, when the disease assumes a somewhat rheumatic nature, the legs swollen, hot and very painful when touched. In other cases the lungs or abdominal viscera may be seriously involved. If the horse is tucked up along the abdomen, with hard pellets of fæces covered with



FIRST STAGE OF EPIZOOTIC INFLUENZA.

mucus, the bowels are attacked and your case is somewhat dangerous. If the patient is tucked up in the flanks, with a ridge extending from the flanks to the breast bone, hurried breathing and short painful cough, the disease has attacked some part of the thoracic cavity,—either the lungs or the pleura, probably both—and is extremely dangerous.

TREATMENT;—When first noticed place in a comfortable, loose box-stall, well aired but without draughts. Blanket well and bandage the legs. Relieve costiveness with a pint of

linseed or castor oil and injections of warm water. If the fever is high give,

Quinine Sulph., three drams.
Nitrate Potass., one ounce.
Bi-Carbonate Soda, one and one-half ounces. Mix.

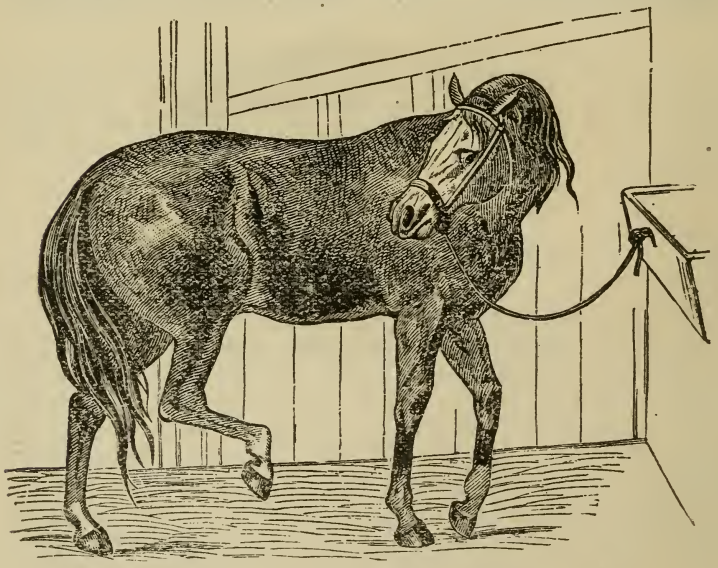
Make into six powders, of which give one every five or six hours. If the horse is very weak give,

Liq. Ammon. Acet., eight ounces.
Spts. Nit. Æth., four ounces.
Tinct. Nux Vomica, two ounces. Mix.

Give two ounces every three or four hours in a little water as a drench. Bathe the throat with a good strong liniment. Feed on soft nutritious diet and give plenty of pure fresh water. If the joints swell bathe with Scotch Oil liniment and bandage. If there are any lung complications use mustard freely on the sides and read treatise on lung diseases. If the bowels are affected give linseed jelly, slippery-elm, etc.

SPASMODIC COLIC, CRAMPS.

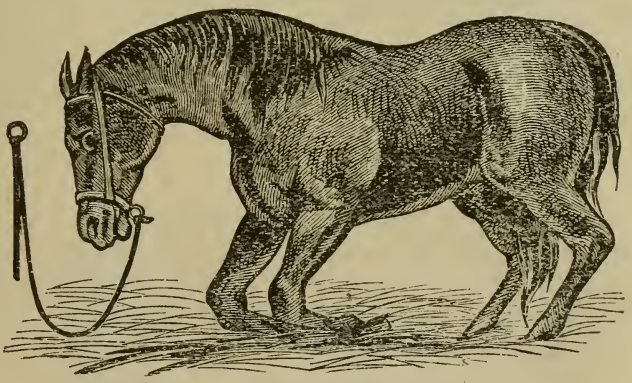
Several diseases of horses,—such as affections of the kid-



FIRST STAGE OF SPASMODIC COLIC.

neys, liver, spleen, etc., cause abdominal pain and are erroneously classed under the head of colic. I shall not treat of them here, but confine myself to spasmodic colic proper, which is a disease of the intestinal canal usually confined to the stomach and small intestines,—an involuntary contraction of the muscular fibers, separate and distinct from inflammation, at the beginning causing intense pain in the abdominal region. There are many and various causes,—such as change of feed from oats to corn; too high feeding; sudden changes of temperature, from hot to cold; standing in the rain; drinking ice-cold water; innutritious food; in fact, anything that will cause indigestion or irritation of the intestinal canal.

SYMPTOMS:—The horse will generally appear uneasy, commence pawing and attempt to lie down, sometimes falling upon his knees, then raising himself up again. As the pain increases he will paw violently, suddenly drop down, roll around for a time, get up and stand apparently easy for a few minutes, possibly attempt to eat a few mouth-fuls. Then he is suddenly

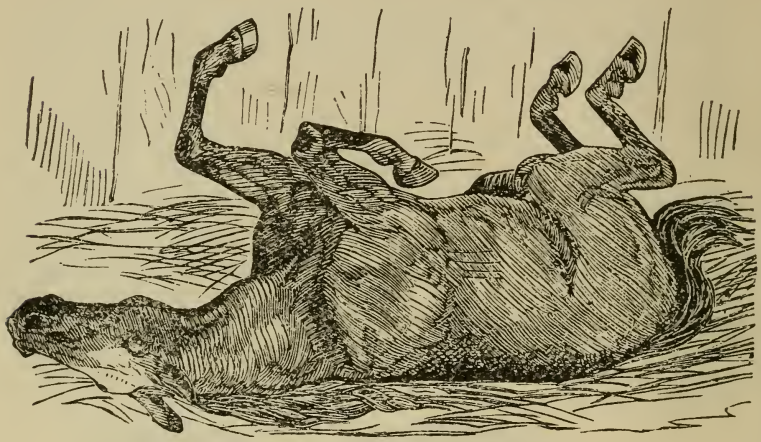


SECOND STAGE OF SPASMODIC COLIC.

seized again paws violently, drops down again and rolls around, —possibly rolls upon his breast and remains there for a time. Then commences tumbling and rolling again; gets up and shakes himself, and possibly the cramps are over. If not, and the pain continues to increase in intensity and the animal is not relieved, inflammation of the bowels (which is very dan-

gerous) may result; or the horse may die from pain and exhaustion.

TREATMENT:—Place the animal in a dry well bedded stall,



LAST STAGE OF SPASMODIC COLIC.

where he is less liable to bruise himself. Rub the legs and abdomen and give,

Barbadoes Aloes, one ounce.
Chloral Hydrate, one dram.
Powdered Opium, one dram. Mix.

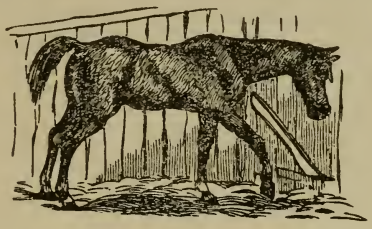
If the pain increases, give,

Spts. Nitrous Æther, one and one-half ounces.
Laudanum, one ounce.
Oil of Peppermint, thirty drops.
Spirits of Turpentine, six drachms.
Linseed Oil, one-half pint. Mix.

Should the pain continue repeat the latter prescription in forty minutes, or give Scotch Colic Cure. If you have failed to give the aloes, after the pains have subsided it is good policy to give a good physic,—either a pint of linseed oil or one ounce of Barbadoes aloes and an ounce of ginger combined.

FLATULENT COLIC.

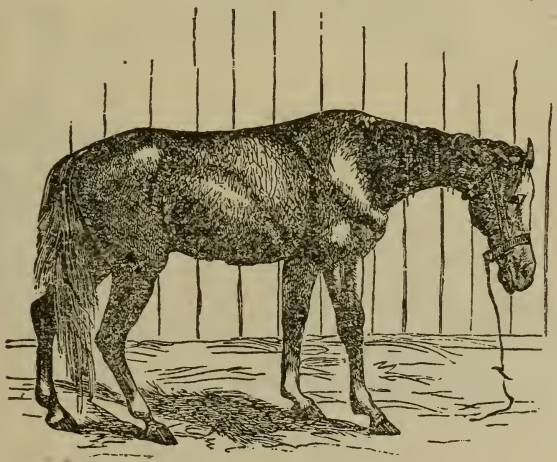
Flatulent colic is a disease separate and distinct from spasmodic colic. In the former there is bloating, or distension with gas, of the bowels; in the latter there is no bloating



FIRST STAGE OF FLATULENT COLIC.

whatever. Flatulent colic is generally caused by some indigestible food setting up a ferment and creating a greater amount of gas than can be comfortably accommodated by the bowels, thus causing intense pain.

SYMPTOMS:—The horse will hang his head and commence looking around at his flanks; soon he will begin pawing, then



ADVANCED STAGE OF FLATULENT COLIC.

will lie down and roll, frequently looking at the flanks; the

animal begins bloating and sometimes has eructations of gas from the stomach; the bowels grow more distended; the pains are continuous and grow more severe; the breathing is shorter and the animal groans or grunts while lying down and often while standing; the legs and ears become cold; cold sweats break out over the body. The disease is usually of short duration and, if not speedily relieved, ends in death.

TREATMENT: —When first noticed give,

Linseed Oil, one pint.

Spts. Turpentine, two ounces. Mix.

If that fails to neutralize the gas give,

Liq. Ammonia Acet., three ounces.

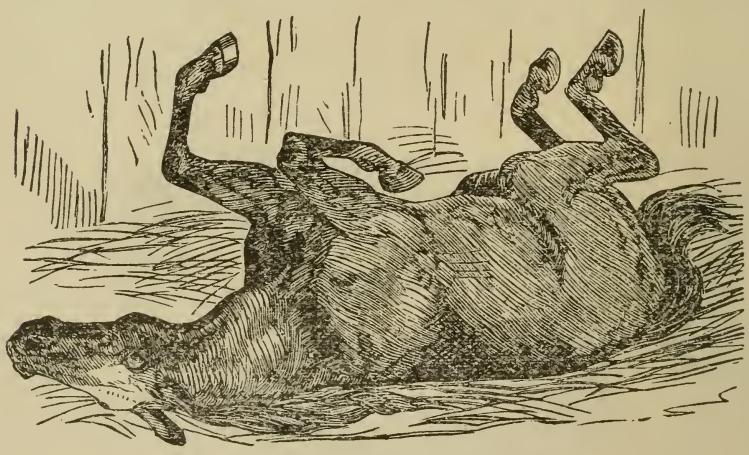
Chloral Hydrate, one dram.

Bi-Carbonate Soda, two drachms.

Tinct. Aconite, twenty drops.

Water, one-half pint.

Repeat every thirty minutes: or give Scotch Colic Cure. Give injections of hot water and castile soap every



FLATULENT COLIC—LAST STAGE.

twenty minutes. If the bloating continues tap with a trocar and canula, on the right side, between the hip and ribs, where it

is most resonant on percussion. After recovery give a pint of linseed oil or castor oil.

GLANDERS AND FARCY.

Glanders is a specific febrile disease peculiar to the horse, mule and ass; and, by inoculation, it can be communicated to man. Its causes are keeping horses in damp filthy stables; impure air; improper feeding; impaired nutrition; sequelæ of "grease heels;" sequelæ of epizootic influenza; also contagion, which is by far the most common.

SYMPTOMS:—Dullness; decreased appetite; eyes watering; fever, rising from 102° to 107° F.; coat staring; at first watery discharge from the nostrils; discharge afterwards turns to a yellowish and later to a yellowish-green, and is very tenacious; in the nostrils reddish ulcerations appear, later becoming

GLANDERS.

purplish; all over the body the lymphatic glands become enlarged, frequently breaking and discharging matter; the sub-maxillary glands enlarge and harden, later on becoming adherent to the jaw; breath fœtid; by auscultation crepitation of the lungs will be discovered; the discharge from the nostrils becomes very profuse and more greenish in color; fever now stands from 105° to 107° F.; quite frequently the limbs will swell,—more particularly about the joints.

TREATMENT:—The best treatment is destruction of the animal as soon as thoroughly satisfied he has glanders. Separate all animals which have come in contact with him. If treatment be attempted place the animal where he can have plenty of fresh air and try the Sulphites,—as Sulphite of Sodium, Benzoate of Sodium, Arsenate of Strychnia, Carbolic Acid;

also vegetable and mineral tonics,—as Sulphate of Iron, Sulphate of Copper, Gentian, Ginger, Nux Vomica, etc.

ANÆMIA.

This is a term used to denote a deficiency of red corpuscles in the blood. The disease is caused by excessive bleeding, deteriorated food; keeping in ill-ventilated filthy stables, without much light; effects of fevers; severe or protracted diarrhœa; leucorrhœa; it sometimes results from epizootic influenza.

SYMPTOMS:—Pallor of the mucous membranes; is tucked up in the flanks; cardiac palpitation; disinclination to move; staggering gait; paleness of eyes and eye-lids; coat more or less rough; later on, if a horse, a swelling of the sheath,—if a mare swellings of a dropsical nature under the breast, slight at first, but gradually extending both backward and forward, in the horse usually extending from the sheath forward; the limbs begin swelling, sometimes reaching an enormous size; on scarifying the swelling there will be an oozing out of serum, barely colored with blood, which may be continued for days, —you will, also, find the flesh of a bluish color; appetite sometimes fair, usually for hay but not for grain; bowels generally constipated, but sometimes a diarrhœa will set in which, if not checked, will commonly prove fatal; rumbling of the bowels is invariably a constant symptom.

TREATMENT:—If possible remove the cause as soon as can be; give plenty of light and fresh air. If necessary regulate the bowels with a pint of castor oil. Give strengthening and easily digested food,—such as ground oats, beans, boiled flax seed, etc. Administer such remedies as will tend to build up the system, as,

Sulphate of Iron, two ounces.
Gentian, one ounce.
Nux Vomica, one ounce.
Arsenic, thirty grains. Mix.

Make fifteen powders: give one powder every five or six hours; or use any of the mineral and vegetable tonics, as, Cascarilla, Quassia, Gentian, Sulphate of Copper, etc. Regulate the kidneys with dram doses of Nitrate of Potassium. Bed the animal well. When the sheath is much swollen scarify lightly.

AZOTURIA.

By some this disease has been described as a disease of the kidneys, by others as a disease of the spine and by others as a disease of the liver. But I have invariably found the whole system more or less affected, from an abnormal amount of nitrogen in the blood, which is caused by high feeding and want of exercise. As the animal is put to work there is a greater amount of waste material cast upon the excretory organs than they can well dispose of; hence an excess of nitrogen is formed in the blood and is carried through the system, invariably settling in the myolema or coverings of the deep muscles of the haunch, causing partial and sometimes complete paralysis of the hind extremities.

Symptoms:—Invariably the horse leaves the stable in the best of health, and, as the driver says, "the horse was never feeling better." But it is probably not driven over half a mile, possibly five or six miles, when he is noticed to hang back, to be covered with profuse perspiration, and to begin to be stiff in his hind legs. Other symptoms are, looking back at the flanks; anxious expression of countenance; breathing short; nostrils distended and red; staring eyes; drooping of the hind legs and knuckling over at the fetlocks, as though there were no strength in them; after staggering around for awhile the animal falls and is unable to get up,—although they sometimes keep upon their feet in a mild attack and, if so, are most likely to recover in a few days; if urine is passed it will be very dark, sometimes looks bloody, smells very strong and be very ropy.

Treatment:—If the horse remains very uneasy give ounce doses of laudanum every thirty minutes until relieved; then remove to a comfortable place and bed well. Clean out the bowels well by giving,

Barbadoes Aloes, eight to ten drams.
Ginger, two drams. Mix.

Give in one pint of water as a drench. While the animal is perspiring blanket well and keep sweating. Apply a fresh sheep-skin over the loins and cover well, or apply cloths wrung out of hot water over the loins, and be careful the animal does not take cold. If the kidneys do not act freely give one ounce

Tinct. Buchu Compound every six or seven hours in a little syrup as a drench. And in a few days give,

Tincture Gentian, two ounces.

Tincture Nux Vomica, two ounces.

Tincture Ginger, four ounces.

Alcohol, eight ounces. Mix.

Give two ounces every four or five hours. Bathe the back and loins with a good strong liniment once or twice a day, also rub from the stifle to the point of the hip. Turn the horse over from one side to the other every three or four hours, and occasionally sponge him off with dilute alcohol. If shod remove the shoes and keep lying upon the breast as much as possible. I believe it bad policy in such cases to swing the horse, unless the slings can be got under them before they go down,—then it is advisable; but after they are down for a few hours do not attempt to swing. If the patient lies upon his breast well and rests easy you may look for recovery in a few days; if he lies straight out the inevitable result is death in a few days. Should the animal not urinate properly, pass the catheter and draw off the urine. If in twenty-four hours the bowels do not respond to the aloes, give a quart of raw linseed oil; also give injections of castile soap and hot water.

EPISTAXIS, OR BLEEDING FROM THE NOSTRILS.

This disease seldom occurs. It is usually caused by hard running, sneezing, coughing, or by external injuries.

SYMPTOMS:—If the blood is merely dropping from the nostrils some small blood-vessel is ruptured. If the blood flows in a stream, and is of a bright scarlet color, it comes from the lungs. If it comes away in dark colored clots, it is, in all probability, coming from the stomach.

TREATMENT:—Elevate the head and apply cold water to it, and inject weak solutions of alum water, Sulphate of Zinc, or largely diluted Sulphuric Acid. Plug the nostrils with a sponge,—but be sure and have a string tied to it to draw it out. You can only plug one nostril at a time.

NASAL CATARRH, OR COLD IN THE HEAD.

This quite frequently arises from standing in a draught, from inhalation of irritating gases, or from decayed teeth.

Symptoms:—Discharge, watery at first, from the nostrils, also from the eyes; sneezing; later on a discharge of matter from the nostrils,—sometimes very fœtid, especially when from a diseased tooth; sometimes ulcers will appear on the septum of the nose, when the discharge is of a muco-purulent character.

Treatment:—Steaming the nostrils with hot water and a little carbolic acid is very beneficial. Twice a day use a spray of Listerine one-half ounce to water two ounces. If from a diseased tooth the tooth should be extracted and, if there is matter in the frontal sinuses, they should be trephined and washed out with,

Listerine, four ounces.

Sulphate of Zinc, one-half drachm.

Water, four ounces. Mix.

Use morning and evening. Feed on good feed with a few tonic powders.

CHRONIC ROARING.

This is so-called from the roaring, rasping, unnatural sound when the horse is put to work and is caused by atrophy or wasting of the muscles on the left side of the larynx; by distemper; by epizootic influenza; by polypus in the nostrils; also by spasmodic constriction of the bronchial tubes from tonic contraction, mostly reflex of the involuntary muscular fibers; by fracture of the bones of the nose,—when the fracture is depressed; by an extra amount of fat; by dropsical swellings, etc.

Treatment:—First, if possible, remove the cause. If that cannot be done treatment is useless. If caused by atrophy of the muscles of the larynx apply every fifth day, for three or four applications, a blister of

Vaseline, one ounce.

Bin-Iodide Mercury, one dram.

Powdered Cantharides, one dram. Mix.

If caused by polypus, have it removed. If from fat, reduce in flesh. In the majority of cases the roaring is made during the inspiration. The horse seemingly inhales more air than the lungs can dispose of; consequently he roars and

chokes down when put to work. By using a clasp over the nostrils, it holds them so he can only take in a certain amount of air at each inspiration; when put to work, the roaring will be stopped and the horse will do a reasonable amount of work. The clasp may be taken off after he has been working an hour, and, in the majority of cases, the animal will breathe freely. In order to keep horses from roaring badly, work them moderately every day.

BRONCHITIS.

This is an inflammation of the mucous membrane which lines the bronchial tubes; it is invariably caused by standing in draughts while overheated.

SYMPTOMS:—Systemic depression; dullness; loss of appetite; redness and dryness of the mucous membrane of the nostrils, followed by fever and a hacking, barking cough; rattling in the anterior part of the chest; in a few days a light colored discharge from the nostrils; the cough now becomes deeper and looser; instead of being, as at first, rapid the pulse becomes softer and more natural.

TREATMENT:—Place the animal in a comfortable and airy stall and blanket well. Apply mustard to the sides and breast and give,

Quinine, thirty grains.

Dover's Powders, one dram.

Liq. Ammonia Acet., three ounces. Mix.

Give every four or five hours; and if the cough is very tight give every three or four hours,

Syrup of Ipecac, four drachms.

Syrup of Squills, six drachms.

Tinct. Opii Camph., six drachms. Mix.

Continue until the cough softens.

SORE THROAT, OR LARYNGO-PHARINGITIS.

This disease affects the larynx and pharynx, situated at the upper part of the wind pipe, and consists of an inflammation of the soft tissues of both.

SYMPTOMS:—This disease is sometimes ushered in by a chill, immediately followed by fever; and if the attack is very severe,

the nose will be elevated, to straighten the air passages. Swellings, sometimes very large externally, but more frequently will be noticed behind the jaws on the neck. Sometimes they are so extensive that the animal can scarcely breathe or can only do so with the greatest difficulty; there will be a wheezing sound at each inspiration. During this period the heart becomes excited and its pulsations rapid. The mucous membranes in the nostrils will be of a bluish color, owing to the lack of sufficient fresh air in the lungs to oxidize the blood. If the patient is in a box-stall it will wander around considerably and endeavor to keep its nose in the direction where there is most fresh air. If the animal attempts to eat, the food will be chewed and dropped out of the mouth; and, on attempting to drink, the water will be ejected through the nostrils. In some cases the cough is very loud, but in many,—especially when the internal swelling is very great, the cough will be very slight. Frequently there is a discharge from the nostrils and an abundant flow of ropy saliva from the mouth.

TREATMENT:—Blanket well and place the patient in a comfortable and airy box-stall, devoid of draughts. Bandage the legs and, if possible, give as a physic:

Aloes, seven drachms.

Ginger, one dram. Mix.

Give at one dose. Then bathe the throat well with hot water and wrap it up with rugs or sheep-skins to keep it warm. Steam the nostrils with scalded bran or oats and give,

Solid Ext. Belladonna, one ounce.

Chlorate of Potassium, one ounce.

Pulv. Glycyrrhiza, one ounce.

Gum Camphor, one-half ounce.

Honey, or Simple Syrup, one-half pound. Mix.

Give a table-spoonful three times a day. If the weather is in any way cold or disagreeable, be very careful about bathing the throat with hot water, as the patient may take cold. So, immediately after bathing, apply Scotch Oil and the danger from cold will be greatly lessened. It also acts as a good counter-irritant, reduces the swelling, removes the effusions by promoting absorption, and leaves the patient less liable to be "thick winded," or "a roarer." The diet should

be of soft feed, as bran mash, or chopped feed mixed with a little linseed meal. Sometimes it is advisable to gargle the mouth with some cooling lotion; in such cases use,

Powdered Chlorate of Potassium, one ounce.

Powdered Nitrate of Potassium, one ounce.

Bi-Carbonate of Soda, one ounce. Mix.

Make into twelve powders. Three times a day mix one powder with half a pint of water and gargle the mouth. If the swelling "points," open with a lancet and allow the pus to escape. Dress the cavity three times a day with,

Permanganate of Potassium, one dram.

Water, eight ounces. Mix.

PNEUMONIA, OR INFLAMMATION OF THE LUNGS.

This consists of an inflammation of the lung substance caused by catching cold; inhaling irritating substances; injuries; drenching through the nostrils, etc.

SYMPTOMS:—The horse is generally taken with a chill; hangs his head; there is redness of the eyes and of the membranes of the nostrils; dryness of the mouth; a cough,

COMMENCEMENT OF INFLAMMATION OF THE LUNGS.

quite deep at first, which gradually shortens for a few days; pulse, at first generally full, gradually growing faster and weaker; rapid breathing; on the third day fever ranges from 103° to 106° and continues until about the sixth or seventh day, when it gradually declines; on the third or fourth it is likely there will be a discharge of mucus from the nostrils; about the seventh day, when the fever subsides, the horse will either get well or there will be great oppression in breathing;

increased prostration; deeper cough; more copious expectoration, emitting a fœtid, purulent odor; and death will result from the sixth to the twentieth day.

Treatment:—Place the animal in a comfortable, airy, loose box-stall. devoid of draughts. Blanket and bandage the legs with flannel. Some practitioners will scoff at the idea of bleeding, nevertheless a plethoric, robust horse, in many instances, will be greatly benefited in the first three or four days by being bled, while an older and debilitated patient would succumb. Apply mustard to the sides and give the following:

Liq. Ammonia Acet., twelve ounces.

Spts. Aeth. Nit., four ounces.

Fluid Ext. Aconite, two drachms. Mix.

Give two ounces every three hours in a little water as a drench. Also give every four or five hours,

Quinine Sulph., twenty grains.

Nitrate of Potassium, forty grains. Mix.

Or,

Powdered Ext. Belladonna, one scruple.

Gum Camphor, two scruples.

Nitrate of Potassium, one dram. Mix.

Give all the water the horse will drink,—just as it comes from the well, and feed on soft diet. If there is great prostration give tonic stimulants, as,

Alcohol, eight ounces.

Tinct. Ginger, three ounces.

Tinct. Nux Vomica, two ounces.

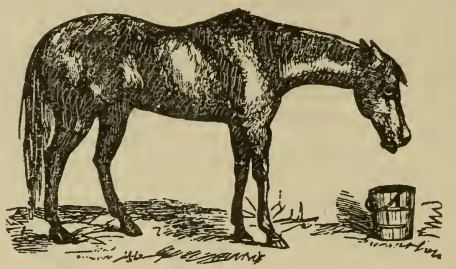
Tinct. Gentian, three ounces. Mix.

Give two ounces as occasion demands.

PLEURISY.

This is an inflammation of the lining membrane of the thoracic cavity. Generally after a chill or cold stage sharp pains begin in the sides; the animal frequently will look at his sides and lie down very carefully, then rise again; the skin is hot; breathing short; also a short cough; *no* discharge from

the nose; pulse hard and rapid; abdomen tucked up, and a ridge extending from the hips to the breast-bone; on punching between the ribs, when the seat of inflammation is reached, the animal will evince pain by grunting; if the animal lies



PLEURISY.

down it will invariably lie on the affected side, but they more frequently stand up. The second day effusion of serum takes place; then the pulse will become slower and fuller, breathing will be easier and the animal seemingly is well again. And, if the effusion is not very great, it will soon be absorbed and the animal *is* well. But, if the effusion is great, the breathing becomes hurried and short; the pulse grows fast and weak; the ridge from the hip to the breast is more prominent; appetite almost completely gone, cold sweats break out and imminent danger is at hand.

TREATMENT:—In the early stage bleeding is beneficial, but later on detrimental. If the pain is very severe give,

Fluid Ext. Aconite, fifteen drops.

Acetate of Morphia, ten grains. Mix.

Repeat in two hours. If the pains subside give the following, —one ounce every three or four hours:

Fluid Ext. Aconite, two drachms.

Fluid Ext. Belladona, four ounces.

Spts. Aeth. Nit., four ounces. Mix.

Apply a large linseed meal poultice to the affected side, and, if recovery is beginning, give as a physic,

Barbadoes Aloes, seven drams.

Ginger, one dram. Mix.

But if the effusion of serum within the thoracic cavity is very great and the breathing hurried the chest should be tapped. Although the operation is simple and easily performed, it does not always result satisfactorily, probably because delayed too long. The proper place to operate is between the eighth and ninth ribs, as close as possible to the ninth rib. It should be done with a trocar and canula, two-thirds the way down toward the bottom of the chest. After tapping give the following:

Iodide of Potassium, one ounce.

Spts. Frumenti, one pint. Mix.

Give a wine-glassful every six hours; also give daily one ounce of Tinct. Perchloride of Iron. Apply a good mustard plaster to the sides or a good cantharides liniment.

HEAVES.

This disease very closely resembles asthma in man, but is more continuous in its symptoms. One of the principal causes is over-feeding on clover hay, but over-feeding with any bulky food, causing overloading and distension of the stomach, will produce heaves. Diseases of the lungs are also said to be a cause. I believe that large horses with small chests are more susceptible to this disease than those with large chests. Therefore, from mares that breed such colts with small chests, developing heaves at the period between six and ten years of age, the disease truly may be said to be hereditary.

SYMPTOMS:—No fever, but short, hacking cough; sometimes discharge from the nose of a mattery substance; heavy, abdominal breathing, with a double lift of the flank at each inspiration; a whezing sound is made when the animal is put to work; breathing very difficult on sultry, foggy days; the animals usually eat dirt and filth; and, invariably, when the animal coughs wind will pass off from the bowels.

TREATMENT:—Keep the animal out of the stable both winter and summer and let it run on pasture as much as possible. When fed dampen both hay and grain. If stabled, keep in a cool well aired stable. If the following receipt is followed daily it will be of much benefit in checking the cough, which greatly benefits the animal:

Fœnugrec, two ounces.
Gentian, two ounces.
Ginger, two ounces.
Tartar Emetic, two ounces.
Spanish Brown, two ounces.
Sulphate of Morphia, sixty grains.
Brown Sugar, four ounces. Mix.

Give a tablespoonful three times a day until the disease is checked; then give a spoonful once a day or every other day. Always give the medicine in soft feed; or give Scotch Heave Specific. Always keep the bowels sufficiently loose.

LYMPHANGITIS, INFLAMMATION OF THE LYMPHATICS.

This is a constitutional disease and most frequently occurs in fleshy heavy legged horses. It is caused by heavy feeding and want of proper exercise. Hence it is generally seen on Monday morning. The heavy truck-horses are worked all week and highly fed, and on Sunday they receive their usual amount of feed. As the system is not working enough to carry off the waste material, the Lymphatic glands become gorged and inflammation is the result.

SYMPTOMS:—If seen at first, there will be noticed a chill, with fever rising immediately afterward; pulse ranging from forty to seventy, hard and cord-like under the fingers; the horse is lame, either in the fore or hind leg, most frequently the latter; if the lameness is in the fore leg, press upon the inside of the fore leg, in the brachial region, close up to the breast, and the horse will evince great pain; if in the hind leg, press in the inguinal region, close up in the groin, and from there to near the stifle, and the horse will be so pained that he will raise his leg sideways, so high that he will almost fall over.

TREATMENT:—If the case is a mild one, exercise moderately and apply hot fomentations to the parts affected. A recovery may be expected in two days. If the case is very severe give immediately, or as soon as possible,

Barbadoes Aloes, one ounce.
Ginger, two drams. Mix.

Give in half a pint of water at one dose. Then apply fomentations of hot water and vinegar to the affected parts for twenty minutes, every two or three hours; after fomenting wipe dry with a flannel cloth. As soon as the physic has operated give, two or three times a day, the following:

Powd. Potass. Nit., one ounce.

Bi-Carbonate Soda, one ounce.

Resin, one ounce. Mix.

Make into twelve powders. As soon as the horse can walk with any comfort, take him out and exercise moderately. Should there be any swelling left in the groin or brachial region, apply Tincture of Iodine every day for a week; then cease for a few days and then repeat. Should there be a tendency to "big leg" (which frequently follows this disease), use the Iodine freely and give the following:

Iodide of Potassium, two ounces.

Nux Vomica, one ounce.

Powd. Sulph. Iron, one ounce. Mix.

Make into fifteen powders and give one powder at each meal. If that should fail, use a good blister along the lymphatic chain.

STOMATITIS, OR INFLAMMATION OF THE MOUTH.

This disease has various causes, such as stings of insects; snake-bites; injuries from the bit; injuries from pulling ropes through the mouth; giving medicines not thoroughly diluted; decayed or irregular teeth, etc.

SYMPTOMS:—Swelling and redness of the mucous membrane lining the mouth; often small blisters will form in the mouth, allowing a discharge of serum, then look raw with ragged edges; sometimes several of these coalesce, forming a large sore; difficulty in swallowing; slavering; often a fœtid saliva dropping from the mouth.

TREATMENT:—If the cause is apparent, remove it; if from any corrosive agent wash the mouth with almond oil, sweet oil, or dilute glycerine. If the teeth are out of condition, attend to them at once. If the mouth is very sore use a paste made of Glycerine and prepared chalk and gum arabic; apply

to the sores several times a day. If the ulcers are very deep and not inclined to heal, mix thirty grains of Nitrate of Silver with one ounce of water and touch the sores with it every other day. Feed on soft feed and give a saline cathartic, as

Sulphate of Soda, one ounce.

Ginger, one dram. Mix.

Give at one dose in a quart of water. Also give dram doses of Nitrate of Potassium three times a day.

LAMPAS, OR SWELLED GUMS.

This is a red or swollen state of the upper gum and may be called properly dentition fever. It usually is seen in colts from one to five years old, and is caused principally from teething; but may occur at any age from indigestion.

TREATMENT:—If in an old horse, give at one dose the following physic:

Aloes, one ounce.

Ginger, one dram. Mix.

Afterward give a vegetable tonic to improve the digestion. If in a colt, scarify the gums,—but do not go back of the second crease in the mouth. Feed corn on the ear and give,

Nitrate of Potass., one ounce.
Chlorate of Potass., one ounce.
Bi-Carbonate of Soda, two ounces. Mix.

Make into sixteen powders and give one powder at each meal in the drinking water. If the bowels are costive, give a physic,—as one pint of castor or raw linseed oil.

SLAVERING.

This is a symptom of some injury or disease of the mouth or excitement of the salivary glands,—as by teething, feeding on musty hay, feeding white clover, irregular teeth, or by the administration of some irritating drug.

TREATMENT:—If from teething, scarify the gums; if from irregular teeth take a float and dress the teeth; if from other causes, use some astringent wash, as,

Borax, one ounce.
Chlorate of Potass., one ounce.
Water, one quart.

Wash the mouth frequently. If from feeding on white clover, cease feeding it and use an astringent wash or paste, made from glycerine and sufficient prepared chalk to make a paste; apply three times a day; or use—

Alum, one ounce.

Borax, one ounce.

Chlorate of Potass., one ounce.

Water, one quart. Mix.

Use frequently. Sometimes it is good policy to apply—

Iodine, two drams.

Vaseline, one ounce. Mix.

Apply twice daily to the parotid glands.

ENTERITIS, OR INFLAMMATION OF THE BOWELS.

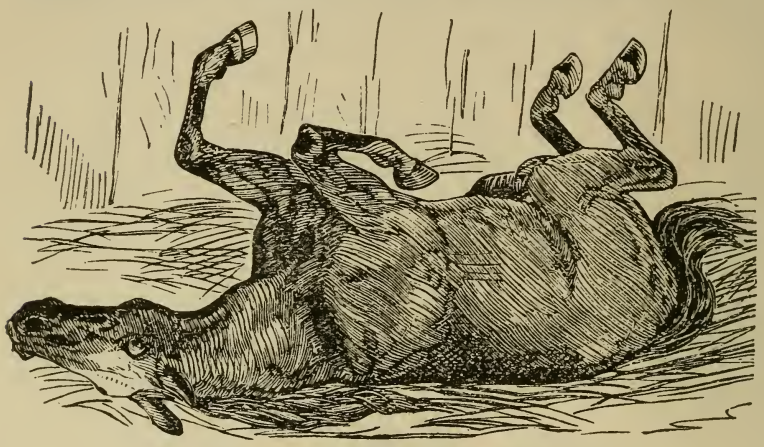
Causes: Drinking ice-cold water; standing in draughts, giving too powerful cathartics; feeding new oats, newcorn, or

INFLAMMATION OF THE BOWELS.

musty grain or hay; heavy, fatiguing work; indigestion; spasmodic colic, when not properly attended to.

SYMPTOMS:—The symptoms very much resemble spasmodic colic. The animal will paw and lie down,—very carefully at first; as the disease advances he will lie down and get up frequently, roll upon his back, lie for a short time in that position, then begin tumbling around. The pains are very severe, and continuous; whereas, in spasmodic colic there are frequent intermissions. The legs and ears get cold. The pulse, at first full and fast—ranging from sixty to seventy,

very soon becomes smaller and weaker. Cold sweats break out on the body; an anxious expression of countenance appears; glassy, staring eyes; upon applying pressure to the



INFLAMMATION OF THE BOWELS.

abdomen the animal will evince pain; breathing hurried; the animal frequently passes pellets of dung, generally glazed with mucous or streaked with blood.

TREATMENT:—If the patient is seen during the early stage, bleeding from the jugular vein, until an impression is made on the pulse, will often give relief. Give immediately—

Sweet Oil, eight ounces.

Hydro-Chlorate of Morphia, fifteen grains. Mix.

Apply hot fomentations to the abdomen. Rub the legs with the following:

Alcohol, four ounces.

Ext. Witch-Hazel, six ounces.

Aqua Ammonia, two ounces. Mix.

Apply bandages and if the pain continues, give dram doses of powdered Opium every thirty or forty minutes until it ceases. Then apply the foregoing liniment to the abdomen and keep the patient well blanketed. Keep the bowels quiet, it makes no difference if they don't move for two or three days.

Feed on light, sott feed, as bran mash, linseed meal, etc. In the course of two or three days give Sulphate of Soda, eight ounces, and continue giving it morning and evening until the bowels move.

MUCO-ENTERITIS.

This is inflammation of the lining membrane of the bowels. It is seen quite frequently in this country, though usually confined to localities where there is poor drainage and the hay and corn-fodder become musty; also where the stabling is poor and the horses are exposed to the inclement weather. Other causes are giving brisk cathartics, drinking impure or stagnant water, etc.

SYMPTOMS:—The first symptom noticed, generally, is a staring coat; others are dullness, loss of appetite, and fever; sometimes pawing and lying down; tenderness of the abdominal region. The animal looks gaunt; abdomen is drawn up. Sometimes there is diarrhœa but more frequently constipation. Quite large balls of manure are passed, coated with mucus,—sometimes very stringy like a large bundle of worms.

TREATMENT:—When first noticed give one quart of castor or linseed oil and change the diet immediately; give a gruel made from linseed meal or slippery elm tea. After the physic has operated give the following:

Sulphate of Soda, one pound.

Quinine, four drams.

Nux Vomica, one ounce. Mix.

Make eight doses and give morning and evening. If diarrhœa sets in spontaneously, let it go twenty-four hours unchecked, as it is frequently beneficial. If the animal is suffering much pain, give ounce doses of laudanum until relieved; then immediately cease giving opiates and give more castor or linseed oil to move the bowels.

DIARRHŒA.

This disease is quite frequently met with among horses. Causes: Giving too heavy cathartics; drinking impure water; eating tender green grass in the spring; indigestion; drinking ice-cold water; over-driving and watering while heated; exposure to cold rains; any irritant within the bowels

SYMPTOMS:—There may be a soft discharge from the bowels, which may be completely overlooked for a considerable length of time because the animal retains its appetite; it may terminate in complete recovery. But in the more severe cases a watery discharge comes flooding from the bowels, with loss of appetite; staring coat; paleness of the mucous membranes; sunken eyes; unsteady or staggering gait; rapid breathing; small, weak and rapid pulse; rumbling of the bowels,—if the ear is applied to the side a rumbling or churning sound is heard.

TREATMENT:—If the discharge is slight, give a pint of castor oil, which will generally effect a cure. But in the more aggravated form, give a pint and a half of castor or linseed oil and one ounce of laudanum. Change the diet to good nutritious food and give every four hours two table spoonfuls of the following:

Prepared Chalk, four ounces.
Powdered Catechu, one ounce.
Powdered Chincona, one ounce.
Powdered Gentian, two ounces. Mix.

Allow the horse to stand for a few days before putting to work, as a second attack is worse than the first.

DYSENTERY.

This is an aggravated form of diarrhœa, tending to inflammation of the bowels. The causes are like those of diarrhœa,—such as feeding musty hay; drinking impure water; strong purgatives; exposure to cold rains, etc.

SYMPTOMS:—Excessive watery discharge from the bowels; abdomen tucked up and very tender; staring coat; sunken eyes; the animal soon becomes very weak; dejected appearance, generally.

TREATMENT:—Give the patient soft and easily digested food, as linseed meal gruel, slippery elm gruel, etc. Administer the following:

Powd. Opium, one half ounce.
Powd. Catechu, one ounce.
Kino, one ounce.
Prepared Chalk, four ounces. Mix.

Make six doses and every four or five hours give one in a little sweet milk. Rub the abdomen with a cautharides liniment or take mustard, mix with vinegar to form a paste, and apply to the abdomen. As the bowels begin to act better and are more regular and more nearly normal in their discharges, give—

Dover's Powder, one ounce.

Quinine, four drams. Mix.

Make eight powders and give one powder at each meal. Bandage the legs and rub them with dilute alcohol; also keep the animal well blanketed and warm.

PERITONITIS, OR INFLAMMATION OF THE LINING MEMBRANE OF THE ABDOMINAL CAVITY.

Causes: Exposure to cold rains when heated; castration; any surgical operation in which the abdominal walls are pierced; kicks or blaws; abscess of the liver or stomach; rupture of the womb while foaling; abscess of the womb.

SYMPTOMS:—Pain in the abdomen, demonstrated by the patient's turning and pointing to the side; on pressing the abdomen at or near the affected part the animal will evince great pain; on being made to move, it seems stiff and in pain; hard and rapid pulse; breathing accelerated and short; quite frequently the animal will bloat; constipation; in three or four days dropsy of the abdomen appears, when the severer pains will cease and the patient will breathe more deeply and freely.

TREATMENT:—If acute peritonitis is seen at the outset, bleeding freely from the jugular vein will frequently stop the progress of disease. Then give fifteen-drop doses of Fluid Extract Aconite every hour until the disease is under control; or give—

Powdered Opium, one ounce.

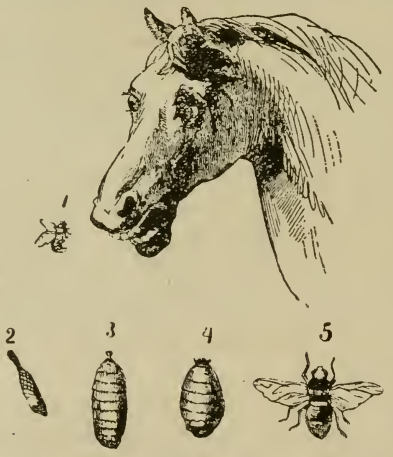
Calomel, two drachms. Mix.

Make into twelve powders and give one every four hours. Apply hot cloths to the abdomen but be careful that the patient does not take cold. Mustard poultices applied to the abdomen will have the same effect. If the disease arises from abscesses of the stomach or liver, or from rupture of

the womb, stimulating treatment should be tried, though the termination invariably is death. Apply diluted alcohol to the limbs and bandage thoroughly. Place the patient where no draughts can strike it and blanket well. Feed on soft mashes or linseed gruel, boiled oats or barley, in restricted quantities.

BOTS.

These are the larvæ of the different species of gad-fly, which pester horses in the summer. They fly about horses and deposit their eggs upon their legs and sides; and, by the horse's biting or licking itself, they are taken into the stomach when they fasten themselves to the mucous lining of the stomach or of the upper part of the small intestine (duode num.) There they develop into the grub or bot and subsis



BOTS.

1.—Female Fly. 2.—Egg.
3.—The Bot. 4.—The Chrysalis.
5.—Male Fly.

upon the gastric or intestinal juices, and when once they lose their hold they seldom regain it. If but few in numbers they never do any harm. If existing in great numbers, they cause indigestion and colic; sometimes they almost stop up the duodenum. In such cases the horse will not thrive and will be troubled with indigestion; it will be weak and easily fatigued.

TREATMENT:—Feeding sliced potatoes is beneficial. Follow it up with a brisk cathartic—

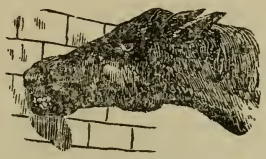
Aloes, one ounce.

Ginger, two drachms. Mix.

This will sometimes carry off quite a number of the bots. But there is no remedy yet known which will destroy the bot while in the stomach. In the early spring they pass away voluntarily and during the summer develop into the gad-fly.

INTESTINAL WORMS.

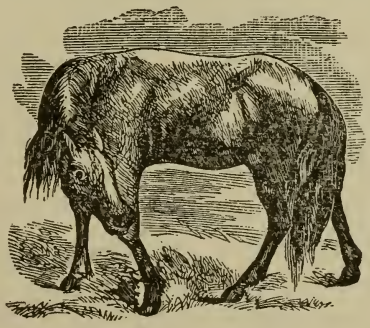
A great many varieties of worms infest the intestines of horses. A thorough description of them is quite unnecessary.



WORMS.

Suffice it to say they are of no benefit to the animal and the sooner they are expelled from the bowels the better.

SYMPTOMS:—Rough, staring coat; ravenous appetite; rubbing the tail; loss of flesh; big or pot-belly; licking of dirt;



SYMPTOMS OF WORMS.

pallor of the mucous membranes; sunken eyes; sometimes constipation, at others diarrhœa; frequent switchings of the

tail; worms protruding or smashed around the anus, leaving a white or mattery substance.

TREATMENT:—Various remedies are recommended for worms,—such as tobacco, turpentine, sulphate of iron, oil of the Male Shield Fern, Santonine, etc. But I have not seen anything for removing them equal to the Scotch Worm Destroyer, if the directions are strictly followed. I have heard men say after giving it that the worms "passed by the peck." Worms infest colts from one to four years old more frequently than old horses, and they should be attended to. A great many colts are lost every year from worms, when a few doses of Scotch Worm Destroyer would have effected a permanent cure.

DIABETES INSIPIDUS.

Among the horses in this country this disease quite frequently occurs and has various causes. Among them are feeding on musty hay or grain; exposure to wet and cold; blows on the top of the head; drinking ice-cold water while heated; eating too much malt from distilleries.

SYMPTOMS:—An excessive discharge—amounting to several gallons within twenty-four hours, of almost colorless urine; excessive thirst; withholding water from the animal does not check the disease. Sometimes it comes on very slowly, at others it develops to an alarming extent within twenty-four hours; it varies in duration from a few days to months and even years. If it lasts for any considerable time, the animal will lose flesh rapidly. There will be pallor of the mucous membranes; rough coat; skin drawn tight to the ribs. Death finally results from emaciation and prostration.

TREATMENT:—Change the diet to good, clean hay and grain, and give—

Sulphate of Iron, two ounces.

Gentian, one ounce.

Nux Vomica, one ounce.

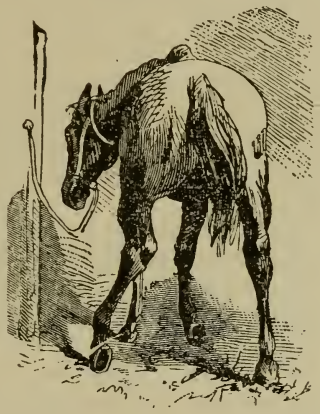
Iodide of Potassium, two ounces. Mix.

Make into sixteen powders and give one powder at each meal. The drinking water should be restricted in quantity and of good quality. Give plenty of rest.

NEPHRITIS, OR INFLAMMATION OF THE KIDNEYS.

This disease is of infrequent occurrence but may be induced invarious ways, –as by spraining the loins while pulling hard carrying too heavy a weight; being heated and then exposed to the cold; absorption of Cantharides when applied as a blister to large surfaces; by the administration of severe diuretics, etc.

SYMPTOMS:—The animal walks with a straddling gait and with back "roached;" evinces pain similar to that of colic; if it lies down, will do so very carefully; small and frequent passages of very highly-colored urine; fever usually very high; pulse cord-like to the touch, and very fast; breathing



INFLAMMATION OF THE KIDNEYS.

very much accelerated; in the course of a few days swelling of the limbs, which disappears upon exercising.

TREATMENT:—Put the animal in a good comfortable place, blanket warmly and apply hot cloths around the loins. Give a good physic—

Sulphate of Soda, one pound.
Water, two quarts. Mix.

Or give three pints of raw linseed oil followed by—

Liq. Ammonia Acet., sixteen ounces.
Nitrous Æther, two ounces.
Spts. Camphor, two ounces. Mix.

Give four ounces every three hours to stimulate perspiration. Feed on soft diet and in a few days give Fl. Ext. Buchu Juniper with Acet. Potass., half ounce doses morning and evening. Keep the bowels loose all the time and give injections of warm water and laudanum every hour for a few hours.

RETENTION OF URINE.

This has various causes,—such as spasm of the neck of the bladder; calculus (or stone in the bladder) working its way into the urethra; paralysis of the neck of the bladder; over-distention of the bladder with urine. The more frequent cause is spasm. In spasmodic colic the neck of the bladder becomes constricted and is only relieved as the colic disappears.

SYMPTOMS:—See treatise on colic for symptoms of spasm. From other causes the animal will walk with a straddling gait; frequently attempt to urinate; stand stretched out and groan when attempting to urinate: sometimes pain is so severe as to cause perspiration to break out all over the body; urine is passed in small quantities.

TREATMENT:—If from colic treat for that. If from other causes, as calculus (stone in the bladder), pass the catheter and afterwards remove the stone. If from spasm of the neck of the bladder or from over-distension with urine, pass the hand per rectum and apply extract of Belladonna, or give hot water injections, or pass the catheter.

CYSTITIS, OR INFLAMMATION OF THE BLADDER.

Causes: Retention and decomposition of urine; irritation by stone in the bladder; in the female, irritation and eversion caused by foaling; injudicious use of diuretics; occasionally heavy and repeated blistering with cantharides; or application, by persons of little sense, of irritants to the neck of the bladder for the purpose of promoting a discharge of urine.

SYMPTOMS:—Frequent attempts to urinate; urine passed in small quantities; heavy straining; bearing down pains; lying down and getting up, quite frequently straining hard while lying; pulse not very much changed; fever ranging from 101° to 104° F.; if on pasture, the animal will wander around in a shiftless uneasy manner; on examining the mare per

rectum or vagina, there will be found a hard round tumor—sometimes quite large, at others small—sensitive to the touch, and the neck of the bladder will be very much thickened.

Treatment:—Feed on soft sloppy gruels or bran mashes. If there is intense pain give dram doses of powdered Opium; also make a decoction of one dram of powdered Opium to one pint of hot water, and inject it into the bladder three or four times a day. Give internally one quart of raw linseed oil, if that does not physic in twenty-four hours, repeat the dose. If the bladder is distended with urine, pass the catheter and draw the urine off. As the patient appears better and improving, give morning and evening half ounce doses of Fluid Extract Buchu Juniper and Acetate of Potass.

GONORRHŒA.

In the male this is inflammation of the urethra, and inflammation of the Vagina in the female. Its causes are unclean sexual intercourse; irritation by stone passing from bladder; injuries during copulation or from passing a rough unclean catheter.

Symptoms:—While passing urine the animal evinces pain; in the male, frequent erections of the penis; occasionally swelling of the testicles; aggravation by exercise; discharge of a yellowish-white matter; occasionally great swelling of the glans penis.

Treatment:—Frequently bathe the parts with hot water; give one quart of raw linseed oil; feed on soft mashes and good clean hay; use injections of hot water three times a day; or injections of—

Sulphate of Zinc, twelve grains.
Water, eight, ounces. Mix.

Or,

Sulphate of Copper, eight grains.
Water, eight ounces. Mix.

Or,

Nitrate of Silver, ten grains.
Water, eight ounces. Mix.

Use three times a day any of these. If the testicles become inflamed apply a poultice of tobacco.

EVERSION OF THE BLADDER.

This occurs only in the female, and then only through excessive straining. Most frequently it happens when the patient is laboring very hard to deliver herself of a colt, with a mal-presentation. If eversion takes place, a red soft fluctuating tumor will be seen, protruding between the lips of the vulva.

TREATMENT:—If the eversion has just happened, place your hand upon the center of the tumor and press continuously and quite hard. The difficulty is to pass it through the neck of the bladder. But, if extensive inflammation has set in, be very careful or you will rupture the bladder, when your patient is done for. Bathe the parts well with a decoction of Opium and give—

Laudanum, one ounce.

Fl. Ext. Aconite, twenty drops. Mix.

Dilute with water and give every hour until the patient stops straining. Whenever you see the patient begin to strain, place your hand on the bladder and hold it firm.

CYSTIC CALCULUS, OR STONE IN THE BLADDER.

SYMPTOMS:—Frequent attempts to void the urine, occasionally passing small quantities and suddenly stopping; blood may be passed in small quantities; on examination per rectum the stone, if of any size, will be found in the bladder; when the stones are small they sometimes will pass with the urine, occasionally hard straining while passing.

TREATMENT:—This should never be attempted by an amateur, as it is not always successful in the hands of a professional. The operation is called lithotomy and is performed by cutting into the urethra in the perineal region, when the patient is a male. Previously pass the catheter and let it remain as a guide. Then pass a pair of spoon forceps, gently dilating the urethra, seize the stone and extract slowly. Afterwards close the wound with sutures and treat as a flesh wound. In the female, gradually dilate the urethra, then pass the forceps, seize the stone and withdraw. In some cases the stone is very large: if so introduce a pair of forceps and crush the stone, then remove the pieces. After removing the

stone inject the bladder with warm water and a decoction of Opium, three times a day for a few days.

INFLAMMATION OF THE TESTICLES.

This has various causes, among them blows; kicks from mares during copulation; excessive copulation; gonorrhœa; catching cold while having distemper.

Symptoms:—Walks with a straddling gait; swelling of the testicles, accompanied by heat and tenderness upon pressure; loss of appetite; disinclination to lie down; sometimes the part is so painful that the animal breaks out in profuse perspiration; drawing up and letting down of the testicle within the scrotum, etc.

Treatment:—Give the patient a good comfortable loose box-stall, well bedded to entice him to lie down. Then give a good physic—

Aloes, nine drams.

Ginger, two drams.

Water, one-half pint. Mix.

Bathe the testicle with hot water and after each bathing apply Solid Ext. Belladonna and powdered Opium, equal parts. Place a suspensory bandage around the testicle and tie over the back, to take the weight from the cord. Put a boiled tobacco poultice in the bandage and keep it on continuously, occasionally greasing with the Belladonna and Opium. If pus or serum can be felt fluctuating, make a free opening and allow it to escape.

INFLAMMATION OF THE MAMMARY GLANDS, OR MAMMITIS.

Causes: Blows on the udder; lying on cold, wet ground; exposure to cold rains; neglect of milking; suddenly feeding rich food, causing indigestion, etc.

Symptoms:—Loss of appetite; fever; hurried breathing; constipation; shivering spells, sometimes the whole bag is involved, but more frequently one-half or a quarter; the part of the bag affected will present a red appearance and be hard and painful to the touch; there will be falling off of milk in that part and possibly in the whole bag; frequently streaks of

blood will pass from the teat while milking; patient walks in a stiff or straddling manner and, quite frequently, will go lame.

TREATMENT:—If the case is very mild bathe well with camphorated soap liniment or Scotch Oil and a cure will result. But in a more aggravated case give—

Epsom Salts, twelve ounces.

Sulphate of Soda, eight ounces.

Ginger, one-half ounce. Mix.

Stir in a gallon of warm water and give at one dose. Bathe the bag freely with Scotch Oil three times a day; or put one-half pound of Sulphate of Iron into one-half gallon of hot water and bathe the bag frequently; or poultice the bag with linseed meal and grease frequently with—

Lard, or Vaseline, four ounces.

Solid Ext. Belladonna, one ounce. Mix.

If matter forms, open and let it escape; inject the abscess with two drams of Permanganate of Potass. in sixteen ounces of water, twice a day. Sometimes in the milder form it is advisable to let a hungry calf suck and burst it. If gangrene ensues, amputate that portion of the bag.

SIMPLE OPTHALMIA, OR INFLAMMATION OF THE EYES.

Causes: Feeding from a rack above the head, thus getting chaff, etc., into the eyes; blows from whips or sticks; exposure to cold; obstruction of the lachrymal duct; irritating influence of a badly ventilated stable.

SYMPTOMS:—Whatever the cause, the eyes will be red, or blood-shot, and watery; swelling of the eye-lids; eyes, hot and feverish; if not relieved a white film spreads over the eye; lids kept closed most of the time.

TREATMENT:—If a foreign body gets into the eye, remove it, bathe the eye with hot water, and all will be well in a few days. A decoction of Opium may be added to the hot water. If from a blow or from exposure to cold, give a physic—

Aloes, one ounce.

Ginger, one drachm.

Water, one half pint. Mix.

Bathe the eye with hot water and apply Scotch Eye Lotion three times a day. Sometimes it is advisable to blister the temples with—

Cantharides, one drachm.

Vaseline, one ounce. Mix.

In removing a foreign body, apply to the eye for a few minutes a solution of two grains of Cocoaine to one-half ounce of water. Apply five drops and in two minutes repeat, when the object can be removed with ease.

PERIODIC OPTHALMIA, OR MOON BLINDNESS.

Causes: First and chief, want of judgment in breeding, as it is undoubtedly hereditary and horses or mares affected with it should not be used for breeding purposes: living in low, marshy, ill-drained localities; irritation from teething; intestinal worms, etc.

SYMPTOMS:—These are similar to those of simple opthalmia, but are more marked. The first symptom usually noticed is swelling of the eyelids in the morning, and, upon examination, the eye is found to be somewhat inflamed, with red streaks of an aggravated appearance running across the eye-ball; at the lower part of the eye-ball will be seen a semi-circular whitish or yellow spot, possibly the size of a half nickle; the inner corners of the eye-brows are drawn down, forming almost a right angle; generally the eye is retracted within the orbit and the haw, or *membrana nictitans*, pushed out over the eyeball. These symptoms may pass off to reappear in the course of a few weeks or possibly months, and continue to re-appear until the animal goes blind.

TREATMENT:—The treatment of periodic opthalmia is simply palliative, unless the case can be removed to a dry healthy climate. Give a physic—

Aloes, one ounce.

Ginger, one drachm.

Water, one-half pint. Mix.

Bathe the eye with hot water and apply—

Atropia Sulph., one grain.
Sulphate of Zinc, two grains.
Water, one ounce.

Put three drops into the eye three times a day; or, better still, apply Scotch Eye Lotion twice daily, and give saline drinks. Dispose of the horse at your earliest convenience.

EPILEPSY, OR "FALLING FITS."

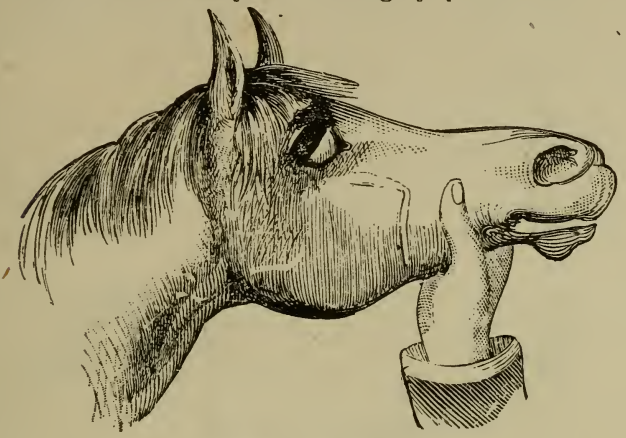
The exact cause of this disease is not known, but it undoubtedly arises from some trouble with the bowels or brain. For, horses troubled with worms frequently have fits, and when once rid of the worms will cease having fits. Others, perfectly free from worms, have "falling fits" for years, owing to some structural change in the brain,—as tumors, abscesses, etc., pressing upon the nerve centres, causing a rush of blood to the brain. Fright will frequently cause "falling fits." A horse, subject to them, when frightened will invariably fall over in a fit.

SYMPTOMS:—Generally the first symptoms noticed will be movement of the ears backward and forward, loss of motion or staggering gait, head drawn backward, with twitching of the muscles of the neck. Then the animal will rear and fall over; when down, the head will be drawn backward and the muscles of the body and neck will be rigid or trembling; sometimes the animal will kick and strike violently, remain for a minute or perhaps several minutes, then get up and move on; a wild or anxious expression of the countenance will always be noticed; the eyes bulge out and are very red.

TREATMENT:—As soon as the fit is seen coming on bleed from the nostrils and the animal will invariably rise and go on; or give by inhalation chloroform or ether, which also relieves. When aware that a horse has fits, attention should be directed to prevention as far as possible. If intestinal worms are suspected, clean the bowels out with a physic and get rid of the worms. In a plethoric horse, an occasional physic will benefit by lessening the quantity of blood and cooling him off. But if the patient is of weak constitution give vegetable and mineral tonics, such as Gentian, Ginger, Fœnugrec, Iron, Coffee, Nux Vomica, or Scotch Compound. In the summer, during hot weather, keep a wet sponge on top of the head. feed on soft feed. Above all do not whip or excite the animal. Sometimes the Bromide of Potassium or Sodium may be given with benefit.

TETANUS, OR LOCK-JAW.

The great majority of cases of lock-jaw arise from puncturing the foot with a rusty nail, but it may be caused by wounds of any description. Quite frequently it is caused by castration —no matter how neatly or thoroughly performed. It may



TETANUS, OR LOCK-JAW.

also arise from exposure to cold or wet, nicking or docking the tail, and from fractured bones. It will sometimes happen without any apparent cause, whatever, and sometimes from excessive fright.

SYMPTOMS:—The first observable sign is a great stiffness; then the eyes are drawn back into the sockets and the haw, *membrana nictitans*, will almost cover the eyes; grinding of the teeth follows, with stiffness of the jaws and dribbling of saliva from the angles of the mouth; on approaching the animal the eyes are withdrawn into their sockets, the haws protrude over the eyes, and the patient manifests great fear; the muscles along the neck are very rigid; the tail is slightly elevated; the animal will attempt to suck food or water, but the act of swallowing is extremely difficult and very little food or water reaches the stomach; breathing is usually accelerated with the nostrils widely distended; pulse, regular but hard and incompressible; fever, in some cases very slight, but in the more severe cases sometimes reaching 107° to 108° F. If

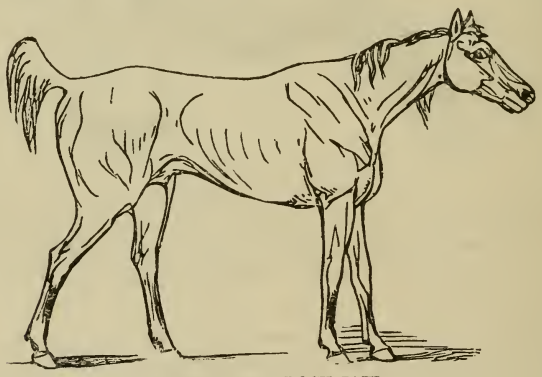
compelled to move the horse goes with a stiff, straddling gait; while standing its legs are spread apart, acting merely as props for the body.

TREATMENT:—If possible first ascertain the cause and remove it. If from a punctured foot, find the spot and pare it out to the bottom, and apply Solid Ext. Belladonna to the wound. Put in a comfortable stall and, as soon as possible, place the slings under the animal to give it rest, but do so very quietly. Then, if you can, give a good physic,—

Aloes, one ounce.

Ginger, one dram. Mix.

Or, one pound of Sulphate of Soda. Give in drinking water or drench. Keep the bowels open by giving oil or Epsom Salts, or Sulphate of Soda in drinking water. Keep



TETANUS OR LOCK-JAW.

the wound well-greased with Belladonna, every four to six hours, give by placing it between the back teeth or on the back part of the tongue. I have seen good results from giving two dram doses of Prussic Acid every five hours, or the following:

Bromide of Potassium, one dram.

Chloral Hydrate, one dram. Mix.

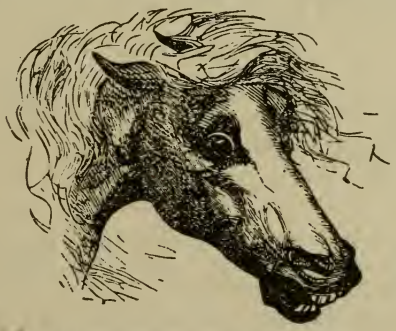
Give with two ounces of Liq. Ammonia Acetatis every four or five hours. All remedies of an irritating nature applied externally, will do a great deal more harm than good.

I have never seen any good results from their application, on the contrary, the patient invariably grew worse steadily. If the disease is occasioned by a wound of any kind, poultice well with flax-seed and apply Belladonna. One thing I wish impressed upon the mind of the attendant: Place the patient in a dark stall, put the slings under it as soon as possible, and *allow no one to go near it but yourself*,—no matter how anxious they may be to see it. While going around the patient, go as quietly as possible. Do your work as quietly as it can possibly be done, as a little fright will sometimes place a convalescent in a worse condition than at first.

PHRENITIS, OR INFLAMMATION OF THE BRAIN.

Causes: Blows; other injuries to the head; fracture of the cranial bones; exposure to excessive heat; clots of blood floating from some other part of the system and lodging in the brain; over-exertion; results of certain fevers, indigestion, tumors in the brain, etc.

SYMPTOMS:—When the membranes covering the brain are affected first the animal will get very uneasy, in fact, uncontrollable; it will jump and plunge about, grind its teeth, climb up against the walls, strike with its fore feet—in fact act as if it were crazy; the breathing will be accelerated; pulse, full and hard; occasionally sweat will break out over the body. If the brain substance alone is involved, the symptoms will vary considerably from the foregoing. The patient will act dump-



INFLAMMATION OF THE BRAIN.

ish and sleepy; it will walk around the stall in a circle until it comes in contact with some object, then it will stand and press its head, possibly for hours, and may force it through; pulse

and respiration will be slow and full; eyes will have a dull or glassy appearance; appetite will be moderate,—sometimes the patient will chew up a mouthful of hay and hold it in the mouth, possibly drop it out again; it will drink a moderate amount of water; in a few days will look very gaunt. The skin of the head is invariably knocked off by their continual pushing and knocking of the head.

TREATMENT:—Put the patient in a comfortable, airy, loose box-stall. Bleed thoroughly from the jugular vein. Then give, to clean out the bowels, a brisk cathartic—

Aloes, one ounce.
Ginger, one dram.
Water, one half pint. Mix.

Apply cold water or ice to the head and give—

Bromide of Potass., one ounce.
Nitrate of Potass., two ounces. Mix.

Make into twelve powders and give one every six hours. Also give every six hours two ounces of the following :

Liq. Ammonia Acetatis, sixteen ounces.
Chloral Hydrate, one ounce. Mix.

If inclined to eat give the patient soft feed and all the drinking water it will take. As convalescence progresses a few good blisters applied to the poll will often prove beneficial. If caused by a fractured skull, trephine and raise the bones to their normal position, thus relieving the congestion.

SPINAL MENINGITIS, OR INFLAMMATION OF THE SPINAL CORD.

The causes of this disease are similar to those of inflammation of the brain,—as external violence, disease of the bones of the spinal column, exposure to cold rains, spraining of the back by carrying a heavy person; also some specific virus in the blood, exposure to wet and cold when exhausted.

SYMPTOMS:—These are very different from inflammation of the brain. The animal will have muscular spasms and partial paralysis of the parts behind the seat of the inflammation. In attempting to walk the feet will be jerked up quickly and put down in a similar manner; patient moves with a staggering gait. Sometimes the pulse is rapid and the breathing greatly

accelerated. Although its movements cause the animal great pain, it is unable to control them. In the course of a few hours the patient will reel and fall over. Though conscious of all surroundings, it will evince great fear upon being approached; will be unable to regain a standing posture alone. Most commonly high fever is present, but frequently the animal will sweat profusely, from intense pain.

TREATMENT:—When thoroughly convinced that the spinal cord is congested, put the patient in a good comfortable place with plenty of bedding. Administer a physic of Aloes, to be followed with four ounce doses of Sulphate of Soda. Apply cloths wrung out of hot water to the spine. In a plethoric animal, before paralysis exists, bleeding will be beneficial,—but not after the animal falls down from paralysis. Rub the back thoroughly with Belladonna, or apply a Belladonna plaster. Give every two or three hours half dram doses of tincture of Ergot of Rye. When certain that the congestion and inflammation have subsided, apply the actual cautery (red hot iron) from the withers to the rump, three lines on each side, an inch apart. Give grain doses of Strychnia combined with two ounces of alcohol and four ounces of water, every four or five hours. Pay strict attention to the diet, giving soft nutritious food. Keep the patient very quiet.

FACIAL PARALYSIS.

This is caused by badly-fitting bridles, bruises, etc.

SYMPTOMS:—Dropping of the lip on one side; difficulty in eating and drinking; partial loss of motion and sensation on the affected side.

TREATMENT:—Give dram doses of Nux Vomica three times a day. Apply to the side of the face the following blister, every four or five days, until it has been applied four or five times:

Cantharides, two drams.

Bin-Iodide Mercury, one dram.

Vaseline, one and one-half ounces. Mix.

STOMACH STAGGERS, OR GRASS STAGGERS.

This disease is seldom known in this locality, as but little rye is raised here for pasture. It seldom occurs except where

there are such pastures. It is caused by eating the flower and the seeds of the rye, which cause indigestion and exert a toxic influence upon the nerve centers.

SYMPTOMS:—The first symptoms noticed are want of control of the voluntary movements, and, in a few days, loss of control of the hind limbs. The animal moves with a staggering, weaving gait, and if turned in a short or limited space will almost fall over, or perhaps quite. Appetite, usually good; bowels constipated; pulse and respirations regular; disinclination to lie down; will stand and rest its haunches against the wall or stall. If the patient falls down and muscular spasms begin, with involuntary jerking of the legs, loss of consciousness (signifying cerebral disturbance), rapid pulse and loud respirations, death will shortly occur. If these symptoms do not present, recovery will take place in from one to three weeks.

SUN-STROKE.

This disease attacks all kinds of horses during the summer heat, but is more prevelent in large cities than in small ones or in the country. The principal causes are badly ventilated, filthy stables, poor food, causing derangement of the alimentary canal, and afterwards being driven in the hot sun; over-work and tight-fitting collars are also causes.

SYMPTOMS:—Sometimes the horse will begin to hang back and seem stupid, hang his head and want to stop. If allowed to stop he will prop himself with all four legs. The breathing is very rapid and heavy; skin hot and dry; the head about the poll very hot; nostrils widely distended; pupils of the eyes contracted; eyes bulged out and very red; if compelled to move the animal staggers and sometimes falls; pulse very quick and weak. If the patient recovers it is comparatively useless in the summer, but will do all kinds of work in the winter.

TREATMENT:—As soon as noticed take off the harness and collar and apply cold water to the head. Sometimes it is advisable to apply cold water all over the body. If the patient is failing give strong stimulants, as—

Carbonate of Ammonia, four drachms.

Whiskey, one pint. Mix.

Give at one dose; or,

Aromatic Spts. of Ammonia, one ounce.

Water, one pint. Mix.

Bathe and rub the limbs well with alcohol; or, better still, with mustard. Give injections of hot water containing a little Ammonia. When the pupils begin to dilate and consciousness returns, give a quart of raw linseed oil.

CONGESTION OF THE SKIN.

Cause: Exposure to cold and rains; being driven in the mud in the spring and fall; imperfectly fitting harness and collar; chafing during the summer months, etc.

SYMPTOMS:—Redness of the skin, attended with itching; if between the thighs the horse will straddle when standing or when first driven; if under the collar, the horse will keep stretching and bobbing the head; if in other parts of the body, they will invariably rub themselves.

TREATMENT:—Bathe the parts well with hot water and castile soap, and apply three times a day—

Sugar of Lead, one ounce.

Soft Water, one pint. Mix.

Or, apply twice daily, this—

Tannie Acid, one ounce.

Glycerine, eight ounces.

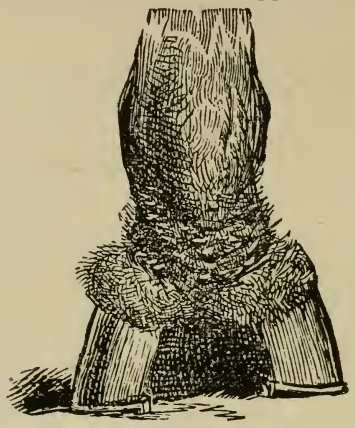
Better stil, use Scotch Ointment.

SCRATCHES AND GREASE HEEL.

Cause: Continuous driving on muddy roads; too much washing in cold water and not being rubbed dry; irritating fumes arising from the manure; running in dirty, wet barnyards; weak or deficient circulation.

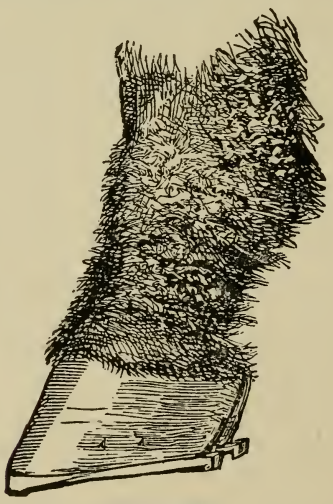
SYMPTOMS:—It is usually noticed in horses of lymphatic temperment, with thick meaty legs, but may attack any horse. Cold or any irritation of the lymphatic or of the subaceous glands will cause the heels to swell and crack open; small scabs will form and be very painful; when first started the horse will lift his heels very high, owing to the pain; there will be more or less fever; appetite usually good; after being

driven for awhile the horse gets over his lameness. If not attended to the case becomes more aggravated; the swelling



SCRATCHES.

increases; deep cracks will break across the heels, and a yellowish-white, foetid discharge will come oozing out and run



GREASE HEEL.

down the heels. Later on the cracks become larger and often

coalesce, forming a very large sore which, when washed, looks red and aggravated. Then comes what is termed the "grapy" stage—small lumps of flesh will raise in bunches very much resembling a bunch of grapes. The discharge still continues and is very foetid and offensive.

TREATMENT:—During the first stage, when the skin is swollen and tender, apply a hot bran poultice, and regulate the diet. Feed on soft feed and give at one dose—

Aloes, one ounce.

Ginger, two drachms. Mix.

Quite frequently the disease will disappear. But as the disease becomes more advanced and small cracks appear with a discharge, continuous poulticing with hot bran will be very beneficial; also use a solution of—

Sulphate of Zinc, one half ounce.

Sugar of Lead, one ounce.

Carbolic Acid, four drachms.

Distilled Water, one pint. Mix.

Apply three times a day. Also give the physic of aloes and give three times a day in soft feed, a teaspoonful of the following—

Nitrate of Potassium, one ounce.

Resin, one ounce.

Bicarbonate of Soda, two ounces.

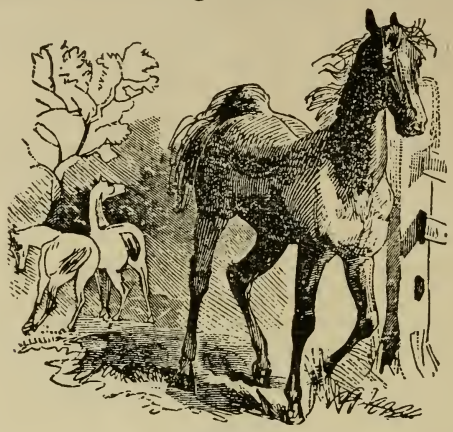
Sulphate of Iron, one ounce. Mix.

Scotch Compound given according to directions will answer the same purpose. When the "grapy" stage appears cut the knobs off with a hot iron or with a knife and apply dilute Muriatic Acid. But at any stage there is no local application equal to Scotch Ointment, when used acording to directions. A great many practitioners advise cutting the hair short for the application of local remedies. I would not advise such a course, as, in my experience, the short hair invariably proved a source of irritation.

MANGE.

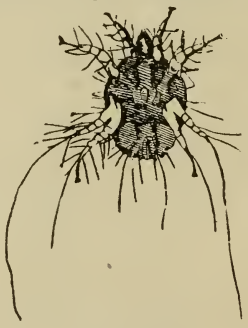
At the commencement this is purely a skin disease, and is caused by a small insect called *Acaria*, which burrows into the

skin and breeds. It forms small pustules which cause considerable itching. As the pustules break a small scab is formed, and so intense is the itching that the horse will rub himself



MANGE.

until the hair, and frequently the skin, are rubbed off. In severe cases the mane and tail will fall off, leaving the horse a pitiable object. Mange is very contagious—at least the Acaria



MANGE INSECT.

will crawl from one horse to another. It is even communicated to a healthy horse by its rubbing himself against a post where a mangy horse has been rubbing.

TREATMENT:—The disease is seldom noticed until scabs are formed. They should be well oiled with sweet oil, and in

twenty-four hours washed with warm water and castile soap, when the following liniment should be applied—

Linseed Oil, eight ounces.

Sulphur, two ounces.

Oil of Tar, four ounces. Mix.

Apply with a brush and wash off in twenty-four hours. If thought necessary apply a second or third time. Regulate the bowels and keep in as good spirits as possible.

LICE.

These are small insects of a low grade which seldom attack horses in good condition, but invariably appear on horses in poor condition. The animal will rub itself and the hair will look rough and staring; there will be pallor of the mucus membranes; sunken eyes; frequently an unsteady gait. An examination will reveal the cause Quite frequently horses are kept close to a chicken house and become intested with chicken lice; these are very small and not easily detected but are very troublesome.

TREATMENT:—As lice seldom covers the whole body, examine and locate the place where they are. Apply diluted kerosene oil two or three times and they will generally disappear. Or, take one pound of Stavesacre seeds and two gallons of soft water; boil for two hours or till reduced to one gallon. Allow to stand twenty-four hours; then apply all over the animal. Two applications generally will suffice. Some prefer the use of tobacco in the same manner, but I am positive that the best results will be obtained from Stavesacre seed.

ERYSIPELAS.

Cause: Anything which has a tendency to lower the vitality and vitiate the blood,—such as diseases of the liver or kidneys, for they are great blood purifying organs, and any affection of those organs tends to impair the blood by leaving within it the effete materials intended to be eliminated by these organs; feeding on musty or badly cured fodder; exposure to extreme heat; wounds; burns; scalds; bites of insects or reptiles.

SYMPTOMS:—Usually erysipelas begins with fever, quite frequently preceeded with a chill; the fever gradually rising; loss

of appetite; pulse ranging from fifty to eighty beats per minute. The skin and connective tissues are the seat of the inflamation, which generally attacks the hind limbs; though the fore limbs, head and neck may be attacked. Owing to the attack the swelling of the skin is sometimes very great. It it begins near the foot it runs very rapidly up the limb. The swelling is hard, but pits on pressure. In a white horse the redness is perceptible, but in horses of any other color the redness cannot be seen. Sometimes, though not always, the swelling is painful to the touch. Small vesicles appear and discharge a yellowish serum; they then form a small scab and in a few days peel off. If for the better, they leave a dry surface; if for the worse, a deep sore, and quite frequently deep cracks having a ragged unhealthy appearance, and disinclined to heal. Sometimes pus will form under the skin burrowing into the muscular tissues; sometimes it is very diffuse, and is re-absorbed by the system, when a fatal termination may be anticipated. When the swelling is great the hair invariably drops off and leaves a shining surface.

TREATMENT:—Open the bowels thoroughly with—

Aloes, one ounce.
Calomel, one drachm.
Ginger, one drachm. Mix.

Give at one dose; then follow up with Tinct. Muriate of Iron in half ounce doses every five or six hours. If the swelling is odematous give—

Nitrate of Potass., one ounce.
Iodide of Potass., one ounce.
Powd. Nux Vomica, one ounce. Mix.

Make into ten powders and give one three times a day. If there is much depression, give alcoholic stimulants; but if they tend to irritate the skin stop using them. As a local application, cover the swollen part with tinct. of Iodine or the fld. ext. of Belladonna; but previously apply water and sal ammoniac. If pus has formed, make a free incision to allow it to escape, and dress the wound and abscess with one ounce of Permanganate of Potass. in one pint of soft water, twice a day; also use the same solution on unhealthy ragged sores; or

Carbolic Acid, one ounce.
Nitrate of Silver, twenty grains.
Glycerine, ten ounces. Mix.

Apply twice daily. When sores break out and become aggravated and when abscesses form, they should be washed twice a day with hot water and castile soap before the dressings are applied. The diet should be first-class in every particular but ground feed is preferable to solid grain. The animal should be kept in a clean, comfortable, airy place. When convalescence is established give Scotch Compound three times a day.

BURNS AND SCALDS.

A great deal depends upon the extent and severity of the injury. Slight burns or scalds may be treated by using a solution of one half ounce of Carbolic Acid to one pint of water, applied frequently. But, if the burn is very deep, cover over with linseed oil or vaseline, to exclude the air. After the pain has ceased open the blisters with a needle and allow the fluid to escape. Then press the skin down closely so that, if possible, it may adhere. If it does not adhere and an open sore results, dress it twice a day with Carbolic Acid five drachms in ten ounces of water; or Sulphate of Zinc, on drachm in one ounce of vaseline. But there is nothing for any indolent sore equal to Scotch Ointment, if used according to directions. Frequent washings with castile soap and hot water are also beneficial.

INFLAMMATION OF THE FEET, LAMINITIS, FOUNDER.

This disease has various causes, such as picking up a nail; having a nail driven too close while shoeing; driving on hard roads barefooted; drinking cold water when heated; eating too much grain; feeding green corn; giving a drastic cathartic; muco-enteritis; or from any affection of the alimentary canal or of the air passages.

Symptoms:—When first noticed the patient generally will be standing with its feet well under the body, the fore feet both pointed forward, and so stiff that it is almost impossible to move it, either forward or backward. The fore feet almost invariably are the ones attacked; the hind feet are sometimes, but very seldom, affected. The breathing is greatly accelerated; temperature varies from 103° to 106° F.; attempts to move

the animal causes so much pain that it will groan; if forced to move, it goes with a jumping staggering gait, almost falling down, and rests very lightly on the heels of the front feet. The feet will be very hot and tender, and if they are struck with a hammer the horse will groan and almost fall down. Sometimes the breathiug will be so accelerated that the nostrils are distended to their fullest capacity. Sometimes only one foot is attacked; in such cases the patient will keep the foot raised the most of the time. Sometimes, in chronic cases, the feet become greatly distorted; the healthy rings around the wall of the foot coalesce; the feet grow crooked and are contracted at the heels. Sometimes the wall and sole become separated; an effusion takes place between the lamina and pedal bone, forcing it down and pressing the sole down along with it—sometimes penetrating through to the ground.

TREATMENT:—Some practitioners prefer hot applications to the feet; but my experience has forced me to conclude that cold applications are preferable to hot ones. Place the feet in a tub of cold water, putting straw in the bottom of the tub to ease the feet; in the heated months put ice into the water; and keep the paitent there for two hours at a time. Do this three or four times a day. When out of a tub, or if a tub cannot be obtained, put flaxseed poultices on the feet and keep pouring in cold water occasionally. Change the poultice every twenty-four hours. Give a physic—

Aloes, one ounce.
Ginger, one drachm. Mix.

Give at one dose. Also prepare and give—

Nitrate of Potass., one ounce.
Acetate of Potass., one-half ounce. Mix.

Make into eight powders and give one three times a day. While the fever is high give fifteen drops of fluid ext. Aconite every hour or two until the fever subsides. After the patient recovers so it can walk around, a little exercise on soft ground is beneficial; but too much exercise is harmful. Sometimes, in the acute stage, bleeding from the toe is very beneficial. But if this is done let the blood run freely, though it is a practice to which I seldom resort. If properly attended to, a large majority of cases will make complete recovery. After recovery

is assured, shoe carefully and keep the feet soft. If slight lameness remains use Scotch Oil around the coronet, and Scotch Hoof Ointment on the hoofs to keep them soft and flexible.

CHOKING.

Choking is most frequently found in horses that are very greedy eaters and consists of the lodgment of dry food (most frequently corn or oats) within the throat. Horses that are fed on roots, such as carrots, mangels or turnips, quite frequently suffer from choking.

SYMPTOMS:—In many cases the horse will be uneasy and the saliva will run from the mouth. If the obstruction be in or near the pharynx the nose will be elevated, the patient will make frequent attempts at coughing and frequently, if the obstruction be grain, portions of it will be ejected through the nostrils in a paroxysm of coughing. The breathing will be labored and difficult and accompanied by wheezing. If the obstruction be farther down the throat the patient will breathe more easily and the frothy saliva will be less abundant — sometimes entirely absent.

I have seen horses, where the obstruction was within the chest, that had not eaten for a day or more,—as the owner said "were feeling a little off,"—that had eaten more food and thus completely filled the whole of the œsophagus. During the whole time they seemed but little distressed other than being hungry and unable to eat. They would chew hay and drop it out of the mouth. Such cases usually terminate fatally.

TREATMENT:—If the obstruction be in the pharynx elevate the nose. Put a mouth speculum in the mouth, insert the hand and, if possible, remove the object by pulling it up. If it be beyond reach and noticeable on the left side of the neck, an assistant will be of great service by pushing it up from the outside. If it cannot be got in this way give the patient a little oil, as Linseed Raw or Sweet Oil, or fresh lard melted; then try and work it down. If the obstruction be dry feed, as, oats, corn or hay, it probably will be softened and pass down. Sometimes while giving the oil, the horse will take a fit of coughing and eject both oil and grain by the nostrils. In such cases wait for a few minutes and repeat the dose; in that way the grain may be gotten rid of by coughing and the plug

will pass on down. If no grain is coughed up or the obstruction is down in the chest, give eight or ten ounces of melted lard or Sweet Oil and let it remain there for a few hours; the obstruction will sometimes pass away. Should it not move place the speculum in the patient's mouth, elevate the nose and introduce a probang, which should be oiled well before using. Pass it down gently, and when you come to the obstacle, press quite heavily and as it starts send it clear into the stomach. Then give a little oil and for a few days feed on soft feed.

If you find it impossible to remove the obstruction with the probang without seriously injuring the horse by rupturing the œsophagus, and the obstruction can be felt on the left side of the neck, take a lancet and cut lengthwise of the neck in to the obstruction. Then carefully stitch up the œsophagus (or gullet) with cat-gut, stitch up the integument (or skin) and feed on very soft or sloppy food for a week or two. If you have passed the probang and not cut the neck, bathe the whole left side of the neck with Scotch Oil to stimulate the parts.

CRIB-BITERS, WIND-SUCKERS OR STUMP-SUCKERS.

This is a habit that is formed principally when the young animal is cutting teeth. It is caused by the pain of cutting and shedding teeth. To relieve itself of the irritation the animal catches hold of the manger or any other object within reach. After a time the habit becomes fixed and when the animal catches hold of the object a gulping sound is heard. It is then sucking air into the stomach.

Any irregularity of the teeth or decayed teeth may cause a horse to form the same habit. When the habit is once formed it is very hard to break it up. After the horse has been sucking wind for a considerable time it causes indigestion and colic. They are unsafe horses to own for they may bloat up and die at any time.

TREATMENT:—Various devices have been used to break the habit, and sometimes with success. Attend to the teeth and, after you get them in good condition, make a paste of red pepper and flour and daub it on the manger; or fasten on the manger a sheep-skin with the woolly side out; or fasten a broad strap around the neck; or fasten some sharp object where

the horse is in the habit of biting. Feed Scotch Compound to improve the digestion.

POLL EVIL.

Poll Evil consists of a swelling or an abscess just behind the ears upon the top and sides of the neck, and the irritation extends down to the first two or three bones of the cervical vertebræ. When the disease extends downward to the bones and affects the joints the animal will carry the head and neck stiff.

TREATMENT:—If the swelling has just begun, so that it is quite noticeable, cut off the hair and apply the following as a blister:

Vaseline, one ounce.

Powdered Cantharides, two drachms.

Mix, and apply every fourth day for three times in succession. Then grease until well; or use Scotch Oil as directed

If this should fail to scatter the enlargement it will hasten the formation of pus. The swelling should then be laid open with a knife. Make a bold incision and cut to the bottom of each and every sinus. Then dress the wound with—

Listorine, four ounces.

Iodoform, two drams.

Glycerine, four ounces. Mix.

Wash the sore with castile soap and hot water and apply the medicine twice daily.

Or use:—

Corrosive Sublimate, six drams,

Water, one pint. Mix.

Apply once a day.

If there be any sinuses running back, put some Corrosive Sublimate down to the bottom of them; then use the former remedy. If you object to using the Corrosive Sublimate in the sinus, cut it down to the bottom and continne to do so as long as the sinuses continue to form. If you find that one remedy is failing try:

Zinc Sulph., four drachms.

Sugar of Lead, five drams.

Water, one pint. Mix.

Apply twice daily, or:

Carbolic Acid, two ounces.

Listerine, four ounces.

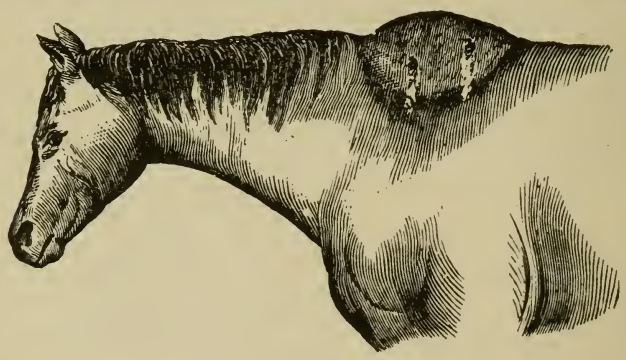
Water, ten ounces. Mix.

Apply three times a day.

It is good policy to wash out thoroughly with castile soap and hot water once a day.

FISTULOUS WITHERS.

This disease very much resembles Poll Evil, only it is located upon the shoulders, and is also very obstinate to treat. It usually comes from a bruise, from the saddle, from rolling,



FISTULOUS WITHERS.

or striking the top of the shoulders against something; for instance, against the top of a low stable or shed.

TREATMENT:—As soon as noticed apply the same remedies as for Poll Evil, and make a dependent orifice to allow the pus to escape, treating the orifice as directed for the sinuses in Poll Evil.

CASTRATION.

There are various methods of performing this operation, but all tend to the same purpose, viz.: removing the testicles and preventing hemorrhage.

First cast the horse and confine him closely and tightly, drawing the hind feet well up along the sides. Have a good

assistant to hold the head. Take hold of the testicle (always taking the smaller one first) and raise it well up. Hold it firmly and make a bold cut about three inches long, close to the dividing line of the testicles. Then take hold of the testicle and cut off the white membrane at the back part of the testicle, but do not cut the spermatic cord or artery. Then, if the *ecraseurs* are used, apply them and smash off the cord. If the clamp is used, fasten it on tightly and tie with a stout cord. The clamps should be grooved so they will have a firmer hold. Then cut off the cord and testicles about a half inch from the clamp. Some prefer ligating, which is simply cutting out the testicle and tying the cord with a silk thread, to prevent hemorrhage.

If the testicles are not down in the scrotum the horse is called a Ridgeling.

If one testicle is down and the other is not, the one that is not down should be procured first. In order to get it, cast the horse and tie his hind feet close up along his sides. Then roll the patient upon his back and cut through the scrotum as if the testicle were there. Then oil your hand and pass it up through the internal abdominal ring where you will almost invariably find the testicle. Take hold of it firmly, draw it out and castrate it by any of the usual methods.

If you do not find it between the internal and external abdominal rings pass the hand on up through the external abdominal ring and you will find it if he has one. Seize it, draw it out and take it off by any of the usual methods.

My preference is for the *ecraseur*, an instrument invented by M. Chassaignac, of Paris.

Take the opposite testicle in the same manner and the operation is complete. Always cut well down toward the sheath to allow the pus to escape freely and prevent any unnecessary swelling. If the clamps are used, remove them in twenty-four hours and turn the horse out or put him at moderate work and he will do much better than if standing in the stable.

About the third day run your finger up around the cord and break off any attachment, so that it will not adhere too low down, and thus prevent scirrhus cord from forming.

Be careful before operating to examine and see that the horse is not ruptured. If a rupture should exist, castrate by

what is called the covered method, which consists in cutting through the skin only, being careful not to cut through the *tunics* or coverings of the testicle. Then castrate with the clamps. Place the clamps over the covering of the testicle, the testicle included, and clamp tightly. Then cut off the coverings and testicles together and allow the clamps to stay on until they come off of their own accord. If the bowels should come out return them and stitch up the internal abdominal ring with cat-gut. Then stitch up the scrotum, leaving a small opening for the escape of pus and the operation will be complete.

AMPUTATION OF THE PENIS.

It is very seldom that we are called upon to perform this operation. But occasionally it has to be done to save the patient and sometimes to be rid of the unsightly appearance, which greatly depreciates the value of the horse.

Some of the causes justifying such an operation are Paralysis of the Penis, caused by blows from the whip or kick from a mare during service; cancerous growth upon the penis; or anything which causes the penis to hang pendulous with inability to retract it within the sheath.

The operation is peformed by casting the patient and administering anæsthetics until you have him under complete control. Then loosen the limbs and commence to amputate by making a circular incision down to the *urethra* (or canal for the passage of urine). Next cut the tissue off from the *urethra* for about an inch, which you must leave. Then cut off the *urethra*. If any small arteries present themselves ligate them. Sprinkle powdered Persulphate of Iron upon the remaining part and allow the patient his freedom. Insert the catheter before operating and allow it to remain during the operation. Pass the catheter every day until the wound is healed.

PHYMOSIS, OR PARAPHYMOSIS.

Phymosis consists in the glans penis becoming enveloped in the prepuce, thus being hidden from view, and forming a soft glazy swelling. It most frequently happens from an injury or as the result of castration.

Parayhymosis consists in the prepuce forming a constriction

around the penis, just behind the glans. The glans penis will then be visible and frequently greatly swollen. It also occurs

PARAPHYMOSIS.

from the results of castration, and from injuries of any description.

The treatment for Phymosis consists in applying hot fomentations and scarifying; also, catch hold of the tumor and evert it by forcing it back. Keep it well greased with vaseline, and should itseem necessary, place a bandage around the body and suspend the penis to relieve the weight.

HERNIA, OR RUPTURE.

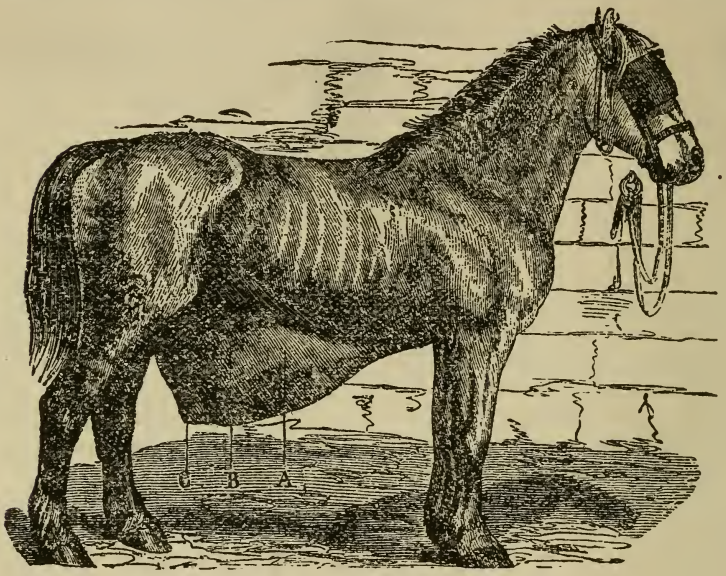
Hernia is the protrusion, either of the bowels or of the mesentery through a natural or unnatural opening out of the abdominal cavity. There are several kinds of hernia, the most important of which I shall mention here.

Umbilical hernia occurs when the opening of the umbilical cord passes into the abdomen which fails to close up and the aperture continues to increase in size. It is invariably seen in young colts, and, if it fails to close, apply a bandage and keep it on for some time. A cure will generally be effected; if not, and the colt is a year old, fasten on a pair of clamps and allow them to slough off.

Inguinal or Scrotal Hernia consists in the passage of the bowels or mesentery down through the the abdominal ring into the scrotum. If in an entire horse cut by the covered operation (see castration). If in a gelding, either open it up, stitch up the abdominal ring and then clamp; or, gather up as much of the scrotum as is possible and clamp, first returning

the bowels, and allow the clamp to remain until it sloughs off. A cure will most generally be effected.

Ventral Hernia consists in an abrasion of the abdominal walls, allowing the bowels to escape through to the skin and



HERNIA OF THE UTERUS OR WOMB.

forming tumors of various dimensions. It is readily recognized by its disappearance upon pressure and almost immediate return on being released from pressure; by its softness and the gurgling sound transmitted by the bowels. If the rupture is small return the bowels and fasten on a clamp, allowing it to slough off; or, bandage tightly when first noticed. A third method is to cast the animal, then return the bowels, cut through the skin and stitch up the abdominal walls and apply a broad bandage.

Diaphragmatic Hernia is when the bowels pass through a rupture of the diaphragm, and press upon the lungs. If any quantity of the bowels pass through, the breathing will be difficult and a terrible gurgling, wheezing commotion will be heard on applying the ear to the chest. In such cases there

is no remedy and the patient will very soon die. It the rupture be small and but a very small portion of the bowels protrude through the diaphragm, the pain may be very intense but that terrible sound around the lungs will be wanting and, if kept quiet on opiates, the bowels may return and the patient do well.

In Strangulated Hernia when the bowels become entangled in the messentery, completely shutting off the passage, death is almost inevitable.

ANEURISM.

The term aneurism is used to denote the rupture or dilation of an artery, forming a fluctuating tumor, disappearing on pressure but immediately returning. It may be caused by hard work or by a hard straining pull. By pressing the fingers upon the tumor the pulsation may almost always be felt.

TREATMENT: —If the tumor is visible and can be operated upon, cut down and tie the artery at either side of the tumor which shoutd then be dissected out. Afterwards treat as an ordinary wound. But if the artery be very large you had better let it alone.

SEEDY TOE.

This term is used to denote an unhealthy condition of the foot, wherein the wall and sole of the foot partake of a mealy or dry, crumbling nature, thus separating them from the sensitive lamina of the Os Pedis, or bone of the foot. It is principally caused from Laminitis but sometimes by a large clip being fastened to the front part of the shoe and being hammered down hard on the wall of the hoof. It may also be caused by an ill-fitting shoe being irregular upon its bearings upon the wall and sole at the toe.

TREATMENT:—Cut out the diseased parts and shoe with a bar shoe; and pad it in the crevices to prevent dirt from getting in and accumulating.

CORNS.

At first these consist of a simple bruise of the sole of the foot and are usually found in the inner quarter of the fore foot, though they are sometimes found in the outer quarter.

Some authors consider them to be horny tumors but such I could never find. However I am inclined to believe that, from the constant irritation, they are the cause of inflammation of the lateral cartilages and thus of the formation of side-bones. Sometimes the corns suppurate and if an exit is not made for the pus to escape by it will cause a bulging of the coronet and will break and discharge there; or the pus will keep burrowing down toward the toe and thus separate the wall from the sensitive sole. Bad shoeing, or allowing the shoes to remain on too long are the principal causes.

SYMPTOMS:—Heat and lameness in the affected foot and invariably pointing it forward; heat and tenderness around the affected quarter; and a sulky stumbling gait when driven. If it is a suppurating corn the horse will scarcely put the foot to the ground and, if it does, will merely rest it on the toe.

TREATMENT:—Take off the shoe and pare down the corn until the sole, between the bar and the wall, is compressible. Then place a sponge over the corn and nail on the shoe, retaining the sponge in position and wet two or three times a day; or shoe with a bar shoe and place the sponge in position. If you suspect a suppurating corn cut down and allow the matter to escape, then remove the dead horn as far around as the pus cavity extends. Afterwards apply Compound Tinct. *Benzoin* twice a day and shoe with a bar shoe or a hinge shoe, and apply Scotch Hoof Ointment as directed.

THRUSH AND CANKER.

The principal causes of Thrush and Canker are filth from standing in manure and urine in the stable, from poulticing with cow-dung, from wading around in a filthy barn-yard, from grease-heel, and from bruises to the frog.

SYMPTOMS :—In simple thrush there is a fœtid discharge from the cleft of the frog and, if allowed to run unchecked, it develops into canker. You then have on aggravated case to deal with. In connection with the fœtid discharge there will be red, tumor-like growths springing out of the frog and they will sometimes bleed. If simply cut off they will grow very rapidly and bleed when cut, with a disinclination to heal. Sometimes these tumors grow till they fill up the whole bottom of the foot.

TREATMENT :—If simply a case of thrush cleanliness, with a few applications of Friar's Balsam, will generally effect a cure. But if the disease advances and Canker is the result you will have to treat in a different manner. Cut down the tumors that have formed to the bottom. Then pencil with Nitrate of silver; afterwards apply Scotch Ointment and pad with cotton batting or tow—or apply Tincture Muriate of Iron and the Scotch Ointment afterward. Should the treatment not succeed well you may apply Butter of Antimony twice daily and after each application use Scotch Ointment and pad the foot; or use a salve composed of :

Zinc Sulphate, four drachms.

Vaseline, one ounce. Mix.

Apply twice daily, or :

Sulphate of Copper, six drachms.

Vaseline, one ounce. Mix.

Apply twice daily, or :

Carbolic Acid, one ounce.

Olive Oil, four ounces. Mix.

Apply once daily until the canker is destroyed, then use Scotch Ointment until the frog and sole assume a healthy appearance. In the meantime keep in a dry place and put the blood in good condition by giving a physic, as follows :

Aloes, one ounce.

Ginger, one dram. Mix.

Give at one dose; afterward use Scotch Compound, and you will thoroughly cleanse the whole system.

PRICKS FROM NAILS.

This is of frequent occurrence from the carelessness of the horse-shoer or from the nails splitting while being driven; also from horses picking up nails while being driven or while running at large—more frequently from the latter than from the former.

SYMPTOMS :—Lameness, heat and tenderness in the foot affected. If a nail splits when the smith is driving it he will notice it at once from the horse flinching. If the nail be withdrawn and the owner not informed, the patient in a few

days may be very lame and suppuration may take place before the real cause is found out; there will be heat and tenderness present. By tapping the foot with a hammer, you may find the exact place. Or, if a nail is driven close enough to press the sensitive laminæ, the patient may not go lame for a few days. Then it will be very lame, frequently holding the foot from the ground or merely resting it upon the toe. By tapping the foot with the hammer you will discover the spot, when you hit the nail that is pressing. Or, if the patient has picked up a nail and goes lame, by examining the foot you will find either the nail penetrating the foot or the place whence it was withdrawn.

TREATMENT :—If from a split nail or one driven too close, draw it out and poultice the foot for a few days with ground flaxseed; a cure will usually be effected. But if it suppurates make an opening and allow the pus to escape, and treat as a suppurating corn (see corns]. If the patient has picked up a rusty nail and you have withdrawn it, cut a hole into the bottom of the foot where the nail entered about the size of a nickle. Then poultice for a day or two and apply Friar's Balsam to the wound. If suppuration has taken place, remove all loose or dead tissues and wash out thoroughly with castile soap and hot water. Then dry it out and apply Friar's Balsam or Scotch Ointment, and protect the foot from dirt or filth. It is sometimes necessary to remove all of the frog and sometimes the sole. Be very careful if the horse has picked up a rusty nail, as Tetanus, or Lock-jaw frequently ensues.

QUITTOR.

The most frequent causes of Quittor are horses calking themselves and catching cold, suppurating corns; pricks from nails; bruises; gravel working up through the feet; disease of the lateral cartileges; also quarter cracks, etc., etc.

SYMPTOMS :—First a tender swelling around the coronet, bursting after a while and discharging a whitish fluid. By probing you will find fistulous openings running down into the foot in different directions.

TREATMENT :—If much inflammation exists and a visible bulging of the coronet, lance it and apply flaxseed poultice for a few days. Then into each sinus inject twice daily the following :

Zinc Sulphate, one dram.

Sulphate of Copper, one dram.

Water, four ounces. Mix.

After you have followed this up for about a week, and the foot is almost healed, stop the injections and apply Scotch Ointment twice daily until a cure is effected. If the disease affects the lateral cartilages, or if side-bones are formed and they are affected, they may have to be removed.

SAND CRACKS.

Sand Cracks or Quarter Cracks most frequently comes from concussion; or from driving at a high rate of speed over rough roads horses whose feet have weak walls, or whose feet have been weakened by rasping; also, from ill-fitting shoes with

QUARTER CRACK.

uneven bearings. The cracks invariably begin at the coronet and extend downward, sometimes into the quick, causing lameness and bleeding. Sometimes fungus growths will spring out of the crack near the coronet.

TREATMENT:—If Sand Crack appear in a strong footed horse I would advise clinching with a nail, or clasp to hold the wall firmly together. But if in a weak footed horse, as it almost invariably is, commence at the coronet and cut the edges of the crack its full length, so they will not rub together. Then cut transversely (crosswise) at the coronet about three-quarters

of an inch to each sids of the crack and apply a bar shoe with even pressure all around. If the quarter is cracked all the way down to the shoe you may take the bearing off from that quarter. If a fungus growth springs out cut it off and touch with Nitrate of Silver. While the crack is growing down, apply Scotch Hoof Ointment twice daily.

CORONITIS.

Inflammation of the Coronet with suppuration is not infrequently met with in this country, and in many instances is caused by frost bites. A great many horses are abused by being compelled to stand out-doors during the excessively cold weather which prevails during the winter season; and fre quently we see cases of Coronitis during that season. Coronitis may also be caused by standing in filthy stables or by bruises. But from whatever cause, this disease it of a serious character.

SYMPTOMS:—There will be noticed a peculiar shuffling or sliding lameness; there will be bulging of the Coronet, fever around the Coronet and a tendency of the tissue to break and slough.

TREATMENT:—The treatment must be constitutional as well as local. Give the following physic—

Aloes, one ounce.

Ginger, one drachm. Mix.

Give at one dose. Also give Scotch Compound to purify the blood. The local treatment consists in washing the Coronet thoroughly with castile soap and hot water, penciling the sores with Nitrate of Silver every third day and applying, twice daily—

Vaseline, two ounces.
Salycilic Acid, two drachms.
Sulphate of Zinc, one drachm. Mix.

Or, best of all dressing, apply Scotch Ointment twice daily.

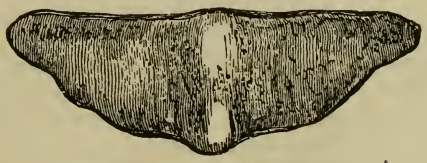
NAVICULAR DISEASES, OR COFFIN JOINT LAMENESS.

The disease consists in inflammation and alteration of the structures entering into the formation of the coffin joint. It is generally seen in horses that are used as roadsters or on the

track. It may be caused by hard driving; picking up nails; by nails being driven into the quick near the coffin joint; by bad shoeing, as uneven bearings, or contraction at the heel; by wearing the shoes too long and too much pressure upon the

NAVICULAR BONE DISEASED.

the soles; by gravel working into the foot; by strain of the flexor tendon where it passes over the joint; also by concussions, bruises, or by standing too long in the stable.



NAVICULAR BONE HEALTHY.

SYMPTOMS:—Pointing of one or both fore feet; if one foot only be affected it will be held in front of the other and rest only upon the toe; if both are affected the animal will change from one foot to the other and point alternately. There will be an inclination to stumble when first driven, but as the animal is warmed up it will travel much better. The animal travels with a stumbling gait, the front part of the shoes being worn down when the heels of the shoes will be almost as good as new. This may go on for some time before the lameness becomes a prominent symptom. Afterwards will be fever in heels with more or less contraction of the hoofs at the heels and a dryness throughout the foot, with lameness now as a prominent symptom.

TREATMENT:—When first noticed take off the shoes and turn the horse out to pasture on swampy ground; or fix up a stall with a clay floor, softened with water, and keep the patient standing there through the day. During the night poultice the feet with flaxseed till you reduce the fever; then

you may insert a frog seaton; or blister around the Coronet with—

Cantharides, two drachms.
Vaseline, one ounce. Mix.

Or use Scotch Oil three times a day. The treatment of Navicular Disease is generally unsatisfactory; but, if the foregoing fails, Neurotomy is the final resort. This may be performed either by the high or the low operation, The high operation consists in cutting out a piece of the Plantor Nerve, just below the knee. The lower operation is cutting out a piece of the Plantor Nerve, at the pastern, between the fetlock and the foot. As the nervous communication is cut off the lameness ceases, although the disease continues unabated. Nevertheless, to say the least, it is a humane operation.

SIDEBONES.

This consists in solidification or ossification of the lateral cartileges, situated on either side of the foot just above the heel. It may be caused by shoeing with too high calks; by pricks of nails; by corns; by uneven shoeing; by cutting away the bars of the foot; by bruises to the heels or soles of the feet, causing a deep irritation or inflammation.

SYMPTOMS:—Lameness, with short, stilty gait and a want of elasticity in movement. On pressing upon the cartilage on either side of the heel you will find it hard and unyielding, instead of soft and pliable; and the pressure will cause pain. Sidebones are almost always found in the heavy breed of horses. Whether in heavy or light horses it is considered an unsoundness.

TREATMENT:—The treatment consists in absolute rest, and shoeing with a bar shoe. If lameness continues blister with—

Cantharides, two drachms.
Bin. Iodide Mercury, one drachm.
Vaseline, one and one-half ounces. Mix.

Or, use Scotch Oil. If these fail use the firing iron and blister immediately. If this fail perform Neurotomy by cutting out the Plantor Nerve.

CURB, OR SPRAIN OF THE CALCANEO CUBOID LIGAMENT.

This disease is always seen at the posterior aspect of the hock and consists of a sprain of the Calcaneo Cuboid Ligament. It is generally caused by horses jumping and rearing; by backing up violently; or by slipping. It sometimes appears as a small very hard nodule; or it may be very large and soft, with heat and tenderness, and more or less lameness. The lameness does not depend upon the size of the curb.

CURB, OR SPRAIN OF THE CALCANEO CUBOID LIGAMENT.

Sometimes the curb is very large with no lameness; at other times it is very small with considerable lameness present. Sometimes it is congenital, and in such cases it is not an unsoundness. It is best observed by standing over it and looking straight down the hind leg from the point of the hock to the fetlock, when you will observe the enlargement about three or four inches down from the point of the hock.

TREATMENT:—First and foremost—rest. Apply high-heeled shoes, hot fomentations and a liniment composed of,—

Alcohol, four ounces.
Tinct. Iodine, two ounces.
Witch Hazel, two ounces. Mix.

Apply after bathing. If this fail to remove apply,—

Tincture Myrrh et Capsicum, eight ounces.

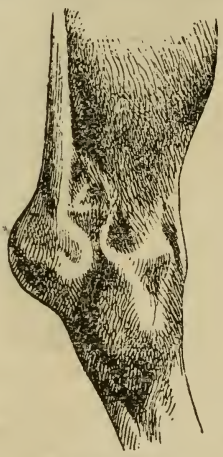
Bin. Iodide Mercury, two drachms.

Iodide Potass., two drachms. Mix.

Apply after bathing with hot water; or use Scotch Oil according to directions.

CAPPED HOCK.

This consists of a serous abscess, situated on the point of the hock, between the skin and the Gastrocnemius Internus, in areolar tissue. It is generally caused by the horse kicking the point of the hock against some hard substance, or by bruises



CAPPED HOCK.

on the point of the hock. The size varies from that of a walnut to that of a good large bowl. The abscess is soft and fluctuating. It seldom causes any lameness, but in rare instances it does.

TREATMENT:—First of all prevent the cause, if from kicking in the stable which it generally is, change the patient to a stall where it cannot injure itself. Then apply high heeled shoes, and foment with hot water until the inflammation subsides. Then open with a lancet from below and allow the serum to escape. Afterwards inject Tincture of Iodine into the sack

and apply a cold bandage; if thought necessary repeat in two or three days. If it heals up and there is no serum accumulating, but just a slight thickening of the parts, apply—

Rectified Spirits, four ounces.

Tinct. Iodine, one and one-half ounces.

Witch Hazel, two and one-half ounces. Mix.

Foment with hot water and apply the liniment twice daily; or apply Scotch Oil as directed.

THOROUGH PIN.

This is a disease of the sheath of the Flexor Perforans Tendons, and is usually caused by a sprain. It sometimes causes considerable lameness; at other times the lameness will be very slight, and, possibly, none at all. This tendon plays down the back part of the hock to the inside of the

THOROUGH PIN.

Os Calsis or point of the hock, and any sprain or irritation may cause an extra secretion within the sheath of the tendon and a bulging out on each side of the back part of the hock, in the hollow or gambrel space. It is usually a soft, fluctuating tumor and if pressed on one side will cause a greater enlargement on the other side.

TREATMENT:—It there is lameness give absolute rest and apply hot fomentations for a few days. Then blister with—

Vaseline, one ounce.

Cantharides, one drachm.

Bin. Iodide Mercury, one-half drachm. Mix.

Or apply—

Tincture Myrrh and Capsicum, eight ounces.

Iodide of Potass., one dram. Mix.

Use morning and evening; or use Scotch Oil according to directions. After the lameness has subsided leave it alone unless it be a valuable horse. Then, if the swelling is great open it and allow the fluid to escape, afterwards injecting Tincture of Iodine into the sack until you are satisfied the sack is destroyed. Then keep cold water running over the hock or apply a sponge on either side of the hock and keep it wet with cold water to keep control of the swelling; and keep this up until the swelling subsides. Immediately after opening give physic—

Aloes, one ounce.

Ginger, one drachm. Mix.

Give at one dose. Feed on soft feed and give Scotch compound three times a day. It will take about three months to effect a cure. It the limb swells very much and the patient does not lie down place slings under it to give rest and relieve the other leg.

TUMORS.

Tumors belong to a class of diseases known as hypertrophies or enlargements, and should not be confounded with inflammatory exudations. Tumors constantly grow or increase in size independent of the surrounding tissues, with the exception that they derive their nourishment from the blood; whilst an inflammatory exudation depends on a morbid state of the parts, and increases as long as the morbid state continues, then decreases to a greater or less extent. Tumors are divided into several kinds or classes. But to speak of them separately is quite unnecessary in a work of this kind. We will treat of them in a general sense or take up those which are most frequently met with in veterinary prac-

tice. These are Fibroid, Fatty, Cystic and Cancerous tumors. Any of these tumors may be seen on almost any part of the animal, and for the removal of them such remedies as Iodine, Mercury and stimulating embrocations are used with more or less success. The best mode of disposing of them is to dissect them out and afterwards treat them as an ordinary wound. (See wounds.) Should a fibrous tumor make its appearance in the nostrils in the form of a Nasal Polypus, it may be removed by an ecraseur, an instrument of French invention for removing excrescences.

INCISED AND CONTUSED WOUNDS.

An incised wound is the result of a cut from any sharp instrument. If an artery or vein be cut it should be taken up and tied. Then wash out any dirt that may have accumulated and bring the edges of the wound together, and fasten with stitches. This may be done by using a curved needle and white linen or silk thread, or catgut sutures. The best mode is by the interrupted suture; viz.: by taking stitches one-half to three-fourth of an inch apart, tying a knot at each stitch and cutting the ends about one-half inch long. Afterwards apply Friar's Balsam, or—

Vaseline, one ounce.

Carbolic Acid, one-half drachm. Mix.

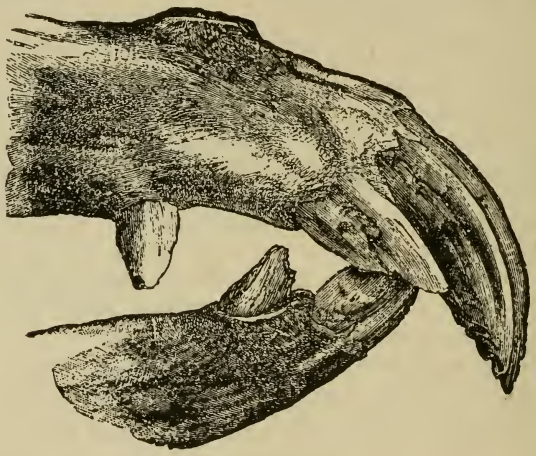
Or use Scotch Ointment two or three times a day. Should the stitch break out the wound will heal by granulation. When this occurs bathe with tepid water and castile soap, then apply Scotch Ointment twice daily.

Contused wounds are those where the tissues are bruised or torn, and always require a careful and thorough examination, for fear some foreign body may be lodged deeply within them. This, if not removed, will be a constant source of irritation and thus prevent the wound from healing. After all foreign bodies are removed wash out thoroughly and stitch the edges of the wound together as best you can. As these wounds always heal by granulation begin at once to use Comp. Tinct. of Benzoin or Scotch Ointment two or three times daily. Occasionally an enlargement or inflammatory exudation is thrown out, sometimes called "proud flesh." When this happens touch every third day with Nitrate of Silver until it dis-

appears, then use Scotch Ointment. If any portion of the skin becomes detached or fails to heal up cut it off with a knife.

PARROT MOUTH.

This is a peculiar condition of the mouth, where the upper jaw is much longer than the lower. Consequently the upper and lower incisors fail to meet and the upper incisors grow down to an enormous length. The incisors of the jaw also grow to such a length that they press upon the bars of the roof



PARROT MOUTH.

of the mouth, sometimes to such an extent as to injure the horse. In such cases the teeth must be filed or rasped down. Parrot mouth is a great inconvenience, as the animal cannot graze; it will, however, do well when fed in the stable.

IRREGULARITIES OF THE TEETH.

Sometimes from various causes the teeth of a horse become very irregular. I have seen the molar teeth of a horse serrated like the teeth of a saw, so that they fitted nicely together. Such animals could not grind their hay, and had to be fed altogether on soft feed. The upper jaw is always a little wider than the other, just enough to fetch the molars nicely together. But sometimes the upper jaw is so wide that the teeth do not

come together, consequently there is an irregular growth. At other times the surface of one tooth is harder than that of its fellow on the opposite jaw; the result is that one tooth grows long and its opposite is worn away. In such cases the projecting tooth should be cut off. I remember seeing a horse six years old, belonging to a Mr. Butler, near Spencerville, Indiana, almost dead from starvation, though it had plenty of hay and grain in the manger. The cause was irregular teeth. The horse was so poor that it could not stand, and so weak that it could not raise its head, and was it fact, dying when I put it out of its misery. Had I seen the horse before it became so weak as to be unable to stand an operation on its teeth or to eat afterwards, it might have been saved. Horses also suffer from ulceration of the teeth.

CARIES OF THE TEETH.

Carries of the teeth is generally caused by blows; by biting hard substances, such as nails; or from food becoming lodged between the teeth, or between the cheeks and teeth; by an excessive flow from the mouth of a saliva, very ropy in consistency; by intense pain, exhibited when the tooth is struck by an instrument; by redness and swelling of the gums; by dropping of half-chewed food from the mouth; by the presence of whole grain in the manure. Other symptoms are unthrifty appearance of the animal; rough starring coat; weakness and emaciation, with profuse sweating on very little exercise; swelling of the jaw. If in the upper molar there frequently will be a fœtid discharge from the nostril on the affected side. If in the lower molar, there may be, in connection with the swelling, a fistula of the lower jaw.

TREATMENT:—The best mode of treatment is to trepine the jaw, just above the fangs of the tooth, and punch the latter out. The punch should be not less than a quarter of an inch in diameter. Place the punch on the fangs of the tooth and hit it a few taps with a hammer, when the tooth will drop out; or you may take a pair of forceps and extract the tooth; this is generally a difficult operation, as they are not only hard to extract, but frequently break off. The after treatment consists in feeding soft food for a few days and washing out the cavity with a thirty per cent. solution of carbolic acid twice a day.

PARALYSIS OF THE LIPS.

Paralysis of the lips is seen in all classes of horses and is the result of an irritation and inflammation of the seventh pair of nerves, called the Portio Dura. It is very seldom, indeed, that the nerves on both sides of the face are affected. The disease is generally confined to one side. During the time the inflammatory action (neuritis) is in progress the nerve loses its functional ability and the exudation from the inflammatory action, pressing upon the nerve, prevents it from regaining that ability and thus the paralysis continues. Examination along the course of the nerve will frequently reveal a small, hard nodule, or the inflammatory exudation which is the seat of the trouble. The causes of this disease may be found in badly fitting or heavy halters and bridles; blows, kicks, etc. The lip will hang pendulous and flabby, with inability to raise it to its proper place. The animal will drop food from the mouth and have great difficulty in getting enough to eat, as it has to gather it with its teeth instead of with its lips. When drinking it pushes its head deep into the bucket to drink.

TREATMENT:—The treatment consists of removing from the nerves all pressure in the form of halters and bridles, and place the horse in a loose box stall. Feed on soft feed and apply hot fomentations to the side of the cheek. Immediately afterward apply Scotch Oil. Continue this morning and evening for about two weeks. Then, if no progress be noticeable, apply—

Vaseline, one ounce.

Cantharides, one-half drachm.

Bin Iodide Mercury, one drachm. Mix.

Use thoroughly every fourth day for three applications. Afterwards grease with hog's lard every day until well. Should this fail, apply the actual cautery, or insert seatons; or you may try acupuncturation.

WOLF, OR SUPERNUMERARY TEETH.

Supernumerary teeth, more frequently called "wolf teeth," are frequently seen just in front of the molars in either the upper or lower jaw. They are small, conical shaped teeth

and of little or no importance, whatever, except where they grow to a sufficient length to disturb the horse while eating. Many persons labor under the mistaken idea that "wolf teeth" causes blindness in horses. This can hardly be the case. But horses having hereditary opthalmia, or which are otherwise prone to weakness of the eyes, may be greatly disturbed during dentition fever; and after such fever is abated all symptoms of opthalmia disappear; and the credit is erroneously given to the extraction of the "wolt teeth." But when called upon to extract them do so for the price and for the owner's consolation—but not for any great benefit to the animal.

NASAL GLEET, OR OZŒNA.

Nasal Gleet consists of a suppurative inflammation of the lining membrane (Schneiderian membrane) of the nostrils and of the sinuses in the bones of the front part of the face. It is sometimes confined to the nostrils alone, but more frequently the sinuses are also affected. The principal cause is a catarrhal inflammation of the membrane, but it may also arise from ulcerated teeth. It may also be caused by injuries to the face; enlargement of the fangs of the teeth; abscesses forming in the sinuses; disease of the facial bones; or the lodging of foreign bodies in the nostrils.

SYMPTOMS:—A constant discharge from the nostrils or more frequently from one nostril, as one side of the head alone is more frequently affected. This discharge is of a bluish white color and tenacious, very much resembling the discharge of glanders. But the glanderous ulcerations are absent, although abrasions or excoriations of the membrane are present, owing to the irritating influence of the discharge. The sub-maxillary glands may be enlarged and if adherent to the jaw, should be looked upon with suspicion. Heat over the sinuses will generally be observed and sometimes a bulging out in their locality. Percussion on the side affected will produce a dull sound compared to that given by its fellow on the opposite side. This discharge is sometimes very offensive and when that is the case the teeth should be examined thoroughly, as it is indicative of disease of the fangs.

TREATMENT:—When the lining membrane of the nostril

alone is affected throw a spray up the nostrils, of a five per cent. solution of Listorine, and administer internally of—

Sulphate of Copper, one ounce.

Nux Vomica, one ounce.

Iodide of Potass., one ounce. Mix.

Make into twelve powders and give one morning and evening. This will often effect a cure. But if the sinuses are affected and pus is contained therein, trephine the sinuses and evacuate all the pus. Then wash out thoroughly with a five per cent. solution of Listorine twice daily. Also throw up the nostril a spray of the same solution. If there is any diseased bone, or it there are any foreign bodies they must be removed. From one horse on which I operated, belonging to Edward Hoppel, near Eel River, Allen Co., Ind., I removed a stick two inches long and half an inch thick, that was lodged within the sinus. After its removal with the above treatment a complete cure was effected. If the bones are affected, syringe the cavity with—

Hydro-Chloric acid, one drachm.

Distilled water, ten ounces.

Use every day for a week, and give any of the vegetable or mineral tonics; or Scotch Compound will give as good results, as it is a most excellent tonic.

BONE SPAVIN.

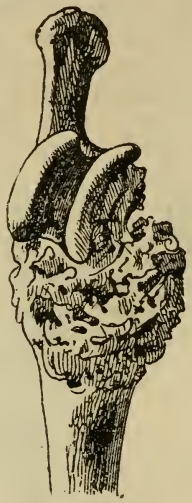
Bone Spavin consists in an irritation sufficient to cause inflammation of the bones of the hock joint. When the inflammation exists between the bones, producing lameness, but without any osseous deposit thrown out to form an enlargement, it is called Occult Spavin. But when there is an exudation of a bony deposit thrown out, causing an enlargement on either the inner or outer aspect of the hock and inducing lameness, it is called a Bone Spavin. This may occur from various causes, but in the majority of cases it is the result of a wrench or sprain. Still I am inclined to believe in the hereditary tendency to spavin. Whether it be in the peculiar conformation of the hock which is marked and transmitted by certain sires, or if it be an ossific diathesis in the blood, I am unable to tell. But I have seen a colt not to

exceed three months old with well-defined ringbones and spavins causing lameness, without any apparent reason therefor. And I could not attribute it to overgrowth, with the consequent extra amount of weight to carry, for, in the majority of cases coming under my observation, it happened in small breeds of horses and the colts were only in moderately good keeping condition. Sometimes a small bony enlargement is situated at the internal aspect of the hock. It is called Jack Spavin and seldom does very much harm, merely serving as an eye-sore. A horse with Jack Spavin should not be

SPAVIN.

considered unsound, as lameness very seldom results therefrom. The symptoms of spavin are lameness of a peculiar character. The animal, when first driven after rest, will walk on the toe of the affected limb, with the fetlock bent forward and with a hopping movement of the hind parts. After driving a short distance it improves very much in its gait; the lameness diminishes and sometimes after the animal is driven some distance, the lameness disappears altogether. In other cases, after driving, the lameness will diminish but still be quite perceptible. If in the stable the animal is made to turn round in the stall it does so with a stumbling hopping movement. On very forcibly flexing the leg at the hock, then dropping the foot and starting the

horse on a trot, it will often go off on three legs. By sitting in front of the horse and looking between the front legs toward the hock you will perceive the enlargement, if there be any. By holding the hand over the antero-internal part of the hock, you will invariably detect fever.



BONE SPAVIN.

TREATMENT :—Various methods of treatment are used for spavin, but one very essential thing, and one upon which all must agree, is that the animal must have absolute quiet and rest. If the spavin be just started mild counter irritation will often effect a cure, and by applying Scotch Oil you will accomplish the object, in from one to three months. If the lameness does not cease in that time apply

Vaseline, one ounce.

Bin Iodide Mercury, one dram.

Powdered Cantharides, one dram. Mix.

Apply thoroughly; wash off in twenty-four hours and grease with fresh lard or oil every day for five days. Then apply the foregoing prescription again, wash off as before and continue this treatment for three applications. Give the horse complete rest and tie it while the medicine is on so it cannot

bite or rub the place. In the course of five weeks, if this fails, apply the actual cautery (firing irons) and immediately afterward apply the before mentioned salve as directed. If it

SPAVIN BONE FIRED.

be an occult spavin or if the true hock joint, that is the large Cuneiform and Astragalus bones are affected a failure to cure is almost certain and the animal remains lame as long as it lives. The sole object in the treatment of bone spavin is to prevent the horse from going lame and this is accomplished only when the inflammation exists between the Cuneiform and Metatarsal bones, and you establish complete union between those bones, thus preventing the irritation from their gliding motion.

BOG SPAVIN.

This sometimes consists of an inflammation of the hock joint, but not always. I have seen bog spavin gradually developing upon horses without the existence of any perceptible inflammation. This kind is generally found in horses which have weak or very upright hocks. It consists of a fluctuating swelling, situated at the antero internal and upper part of the hock, and composed of synovia or joint oil. It is nature's remedy to prevent disease by having an abundance of oil to

lubricate the joint during work or violent exercise. This should be considered merely a blemish and not a disease. But when it is caused by over-work, sprains or wounds it is considered to be more serious. It is then accompanied by

BOG SPAVIN.

heat and lameness, varying in their intensity. When bog spavin occurs from these causes or from rheumatic trouble absolute rest should be given, and the part fomented with hot water three times a day for a few days. Then apply Scotch Oil according to directions, or the following blister :

Vaseline, one ounce.

Bin Iodide of Mercury, one dram.

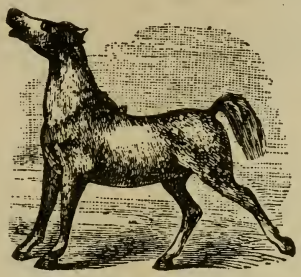
Powdered Cantharides, one dram. Mix.

After the lameness ceases stop treatment and allow nature to take its course. Sometimes bog spavin causes thorough-pin and when this is the case treat as for bog spavin alone.

STIFLE-JOINT LAMENESS AND DISLOCATION OF THE PATELLA.

Stifle-joint lameness is usually detected by the manner in which the horse brings the foot forward, which is done with difficulty, the leg swinging outward with a circular motion

and dragging the toe (although they do not always drag the toe.) The foot is sometimes raised clear off the ground but with the circular motion and placed flat on the ground. Whilst the animal is at rest the leg is usually in a semi-flexed position. Heat around the stifle joint is quite a prominent symptom but is sometimes wanting. Sometimes quite a prominent symptom is a fluctuating swelling or dropsy of the joint. If you have dislocation of the Patella, or what is more commonly called



STIFLE-JOINT LAMENESS.

"stifled joint," you will observe that while the horse is standing in the stall it may stand squarely upon both feet; but, if you force it to walk the stifled leg will fly backward and the animal is powerless to bring it forward. If you examine the joint you will find the Patella on the outer side of the leg and the groove in the femur may be felt quite plainly.

TREATMENT:—When lameness is present in the stifle-joint, without dislocation, give absolute rest and apply hot fomentations of water three or four times a day, to allay the inflammation. Then apply Scotch Oil three or four times daily until you blister thoroughly. Then allow to rest for three or four days and repeat several times in this manner. If the patella is dislocated fasten a rope or strap around the fetlock, then pass it through the collar and draw the leg forward; no matter if the patient struggles hard, force it forward. Then place your hand behind the bone, which will be felt at the outside of the leg, and force it forward, when you will feel it drop into place and the patient will have full control of the leg. Apply Scotch Oil three or four times a day for two or three days, allow the patient to rest for a week and all will be well. If the patient kicks it out or it drops out of

its own accord immediately after you have placed it in position, you must apply Scotch Oil until it blisters thoroughly and the swelling will force it into position and strengthen the ligaments that have been relaxed. Then allow a longer rest than would ordinarily be required. If you cannot get Scotch Oil apply the following :

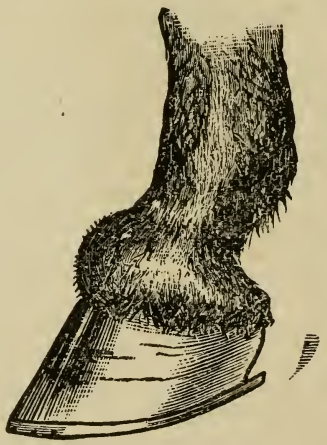
Vaseline, one ounce.

Powdered Cantharides, two drams. Mix.

Wash off in twenty-four hours and grease every day for three days; then apply again and grease every day until well.

RINGBONE.

Ringbone very much resembles spavin, except in location. Ringbone consists of an osseous deposit upon the upper and lower pastern-bones. When the deposit is around the middle of the large pastern and not involving the joint it is called an osselet or false ringbone and is seldom the cause of lameness;



RINGBONE.

it should not be looked upon as an unsoundness, as it calls for no treatment whatever. True ringbone acts very differently from the false and occasions more or less lameness. It may affect two very important articulations, viz., the articulation between the large and small pastern or between the small

pastern and the coffin-bone. The former articulation is the one most frequently affected and where complete union is most easily obtained; here less stiffness will be the result if a cure results than where the lower joint is diseased. But in either location the disease is difficult to treat with any satisfaction and it is sometimes incurable, the lameness continuing through life. Sometimes the deposit completely encircles the joint; at others is on one side, and directly in front of the joint. The degree of lameness does not depend upon the size of the enlargement but more upon its location. If it is situated immediately in front of the pastern, the lameness will be

RINGBONE.

greater than when situated on either side. The lameness is greatest when the deposit is between the lower pastern and the coffin-bone. When between these two bones it frequently causes a bulging of the foot and not seldom causes the foot to turn inward, forming what is known as reel-foot. The lameness of ringbone always precedes the deposit and is caused by inflammation existing in the bone or in the synovial membrane surrounding it. Ringbone is occasioned by sprain; by fractured bone; and by the hereditary tendency referred to in the treatise on spavin.

TREATMENT: — When first noticed there will be no

enlargement but considerable lameness and fever. Then apply cold water freely to allay the inflammation and after bathing apply the following :

Spirits Chloroform, two ounces.

Laudanum, two ounces.

Witch Hazel, four ounces.

Tincture Aconite, one half ounce. Mix.

If the lameness continues after ten days' treatment apply Scotch Oil freely for two months; or use the actual cautery and immediately afterwards apply,

Vaseline, one ounce.

Corrosive Sublimate, two scruples.

Powdered Cantharides, one and one-half drams. Mix.

Make three applications with intermissions of four or five days between each two applications. Give absolute rest and if the patient is inclined to walk upon the toe use high calks upon the heel of the shoe. But if inclined to walk upon its heels use a thin.heeled bar shoe. If all these fail Neurotomy may be performed with varying success.

SPRAIN OF THE FETLOCK JOINT AND SESAMOIDITES.

It is possible to have sprain of the fetlock joint or of its lateral ligaments without injury to the sesamoid bursa; but such cases, I think are very rare. Owing to the particular manner in which the sesamoid bones are placed behind the joint, over which the flexor perforans tendons play, I am constrained to believe that any exertion sufficient to cause sprain of the fetlock joint will, at the same time produce inflammation of the sesamoid bursa. A sprain of this joint will be detected on observing inability to flex the joint; fever; swelling; pointing of the foot; and excruciating pain when the joint is forcibly flexed. Sometimes the sesamoid bursa will be greatly swollen, but not as a rule; what swelling is there will be very hard and unyielding.

TREATMENT :—Apply cold water frequently and bandage, after which apply counter-irritants, as Scotch Oil or a blister composed of,

Vaseline, one ounce.

Bin Iodide Mercury, two drachms. Mix.

If you do not consider it a very bad sprain apply after each bath the following :—

Tincture Iodine, two ounces.

Witch Hazel, two ounces.

Alcohol, four ounces. Mix.

Then bandage and give perfect rest.

SPRAIN OF THE SUSPENSORY LIGAMENT.

This is a very large ligament composed of white fibrous tissue, and extends from the knee in the fore leg and from the hock in the hind leg down the back part of the cannon bones. Just above the fetlock it divides and becomes attached to the sesamoid bones, below which it re-unites and joins the flexors of the foot. Sprains of this ligament happen only through severe exertions, and sometimes the strain is sufficient to cause rupture of the ligament. This generally happens near the dividing point, just above the fetlock. The most prominent symptoms are lameness; heat; and swelling beneath the flexor tendons and down behind the cannon-bones; with swelling of the leg at the fetlock joint. If the ligament is ruptured the fetlock will spring down close to the ground and the toe will be turned upward. The rupture may occur higher up, or at the attachment of the ligament to the sesamoid bones, or even below the fetlock; the result is the same. This is what is meant by the term, "broken down."

TREATMENT :—Absolute rest in a comfortable box stall, well bedded to entice the patient to lie down. Bathe with cold water, after which apply bandages and keep wet with cold water. After the fever has subsided apply Scotch Oil to remove the swelling or use,

Tincture Iodine, two ounces.

Bin Iodide Mercury, two drachms.

Tincture Myrrh and Capsicum, six ounces. Mix.

Apply three times a day. If the ligament is ruptured bandage the leg in a set of splints, so as to hold it in a proper position. Heavy belting makes a good support for the limb, by cutting it to fit and packing the space between the fetlock

joint and the heel to form a prop. This will hold the limb in proper shape. Or put on a bar shoe and fasten an iron brace to it, bending it to fit the fetlock and extending it up to the knee. Pad it well with cotton batting and bandage. After complete union is secured remove the support and blister a few times to remove the swelling. Horses that have once "broke down," or ruptured the suspensory ligament, should not be put on the track nor at heavy pulling; but they may be used to good advantage for ordinary work, after a rest of six or eight months.

SPRAIN OF THE FLEXOR TENDONS.

Sprain of the flexor tendons, like sprain of the suspensory ligament, is caused by heavy pulling and fast running or trotting; also by wearing shoes with high toe-calks. The symptoms observed will be lameness; heat and swelling at the back part of the leg; and the peculiar way in which the horse moves the limb, which is with a stiff stubby movement; the toe touches the ground first and the horse bears most of its weight upon it, seldom bringing the heel to the ground during the first stages. After it becomes chronic, or the more severe symptoms have subsided, the heels will be brought to the ground, there will be a shortening of the tendons and a knuckling over of the fetlock joint. The swelling, which is a prominent symptom, will diverge from the seat of the sprain and extend up and down the tendon, involving the thecae, or sheaths of the tendons to such a degree that the tendons with difficulty pass through them.

TREATMENT :—Shoe the horse with a bar shoe without calks, to give the shoe an even pressure when standing. This will prevent shortening of the tendons, which is likely to occur with high heel-calks, which only afford temporary relief. Apply cold bandages, occasionally pouring on cold water until the fever subsides. Then apply Scotch Oil, or one of the following mixtures, three times a day :

Tincture Iodine, one ounce.
Bin Iodide Mercury, one and one-half drachms.
Tincture Myrrh and Capsicum, seven ounces. Mix.

Or,

Tincture Cantharides, two ounces.
Tincture Iodine, one ounce.
Tincture Capsicum, two ounces.
Alcohol, three ounces. Mix.

Or,

Oil Cedar, four drachms.
Oil Hemlock, four drachms.
Oil of Tansy, four drachms.
Oil of Wormwood, four drachms.
Alcohol, eight ounces. Mix.

If shortening of the tendons should take place Tenotomy may be performed if the patient is a young horse. But if an old horse the operation had better be let alone. The operation is performed by casting the horse and securing it firmly. Then loosen the leg to be operated upon; fasten it as straight out as possible by a rope or strap tied to the fetlock. Make a small incision midway between the knee and the fetlock, the smaller the incision the better. Pass the knife flat-wise beneath the tendons, taking care to keep outside the blood-vessels, until you feel the knife against the skin on the opposite side. Then turn the edge of the knife towards the tendons and cut outward very slowly until you have severed the tendons. Then withdraw the knife. Be very careful to only cut the skin in one place and that a very small opening where the knife enters. Place your knee against the leg and forcibly straighten it to break up any adhesions which may have formed. After the operation keep the leg straight by putting on a shoe with a high toe-calk; or fasten a piece of iron to the shoe and let it extend six inches in front of the foot. If the toe should turn up a little have no fear, for when the tendons grow together it may shorten a little too much. After union has taken place remove the thickening with a few applications of Scotch Oil.

BROKEN OR BRUISED KNEES.

Whenever you see a bruise or a scar upon the knees of a horse the animal, as regards value, should be looked upon with suspicion, unless the horse has good free action and the bruise

is known to be purely accidental. For a majority of cases arise from faulty action of the fore legs; vertigo or fits; "speedy cut" or interfering; diseased feet or navicular disease; over-reaching; or from bad shoeing; and possibly from the driver's awkwardness. The disease is more frequently noticed in the form of bruises than as broken bones.

TREATMENT:—When bruises exist, without any abrasion of the skin, apply cold water frequently, with dressings of vaseline. Give rest, with good, deep bedding, and probably no other treatment will be necessary. But when the skin is lacerated, if none of the deeper tissues are involved, wash the wound

BROKEN KNEE.

well and bring its edges together with heavy court-plaster, leaving an opening below for the escape of pus; give rest and tie the horse up so it cannot lie down, to prevent it from breaking any of the adhesions while flexing the leg. Never use any stitches, as any movement of the knee will tend to tear them out. Where, besides the laceration of the skin, deeper tissues are involved, so that the tendons and synovial membrane are torn, and "open joint" is the result, you have a more serious case in hand. The wound may set up an extensive inflammation, the surrounding parts become greatly swollen, followed by so extensive a sloughing of the parts as to expose the bone. There will then be considerable constitutional disturbance; high fever; loss of appetite; bowels constipated; difficult voiding of the urine; and a fœtid discharge from the wound. It is then as serious as a broken bone and the animal should be destroyed unless valuable for breeding purposes. If the animal is to be preserved force the leg out straight and fasten it with splints to maintain it in that

position, leaving the knee exposed for treatment. Wash it out three times a day with tepid water and castile soap and apply Scotch Ointment three times a day; or use the following three times a day :

Zinc Sulphate, two drachms.
Acetate of Lead, four drachms.
Carbolic Acid, two drachms.
Soft Water, one pint. Mix.

Or,

Permanganate of Potass., one drachm.
Tannin, one drachm.
Distilled Water, one pint. Mix.

Or,

Listorine, two ounces.
Carbolic Acid, one drachm.
Distilled Water, six ounces. Mix.

CARPITIS, OR INFLAMMATION OF THE KNEES.

Inflammation of the knees may arise from different causes, such as concussion, rheumatism, sprains, etc. The animal is observed to hold the leg stiff and to exhibit intense pain upon either flexion or extension of the knee. If the animal walks it will carry the leg stiffly. Sometimes there is swelling of the knee; at others there is perceptible no swelling whatever. If the disease exists between the bones there will be no swelling until an exudation is thrown out, and when this happens, a stiff knee is almost certain to be the result.

TREATMENT :—Give complete rest and, if thought necessary, place the patient in slings. Use applications of cold water until the fever subsides; then apply a strong blister, as—

Vaseline, one ounce.
Bin Iodide Mercury, one drachm.
Cantharides, one drachm. Mix.

Use repeatedly. If there is a fluctuating swelling in front of the knee, puncture it and allow the fluid to escape, after which apply a wet bandage and keep it wet. Should it fail to disappear apply the foregoing blister.

ELBOW LAMENESS.

Disease of the elbow is not an unfrequent occurrence.

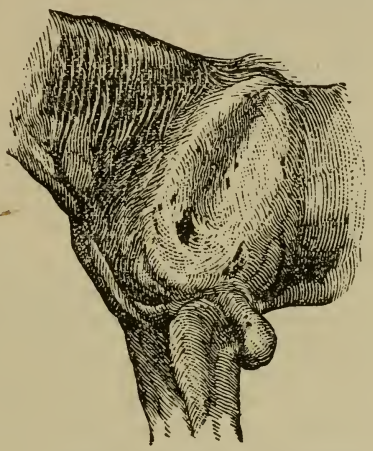
SYMPTOMS:—While standing the horse holds its leg in a peculiar manner—carried well back, the leg flexed and resting upon the toe. In walking the limb is brought forward with difficulty and when putting it to the ground to make the step, the patient drops the head and shoulder as though about to fall. There may not be very much heat or swelling. If there is fracture of the point of the elbow you will see the excessive dropping of the head and shoulder; the leg will be flexed or seemingly in a pendulous condition, with heat and swelling and pain upon pressure. Sometimes "capped elbow" causes lameness, but not always; when it does you do not have such excessive dropping of the head.

TREATMENT:—If there is lameness, without swelling or heat, apply Scotch Oil according to directions. Allow sufficient rest and a cure will result. If there is fracture of the elbow swing the patient up immediately and feed on soft feed. Apply splints and bandage from the knee up above the elbow to hold it in position, and keep the patient swung up until complete union has taken place, which will be in from six to ten weeks. Broad rubber belting makes a good splint, and bandage combined. If the lameness comes from capped elbow (usually caused by the horse lying with its elbows resting upon the heels of its shoes), remove the shoes and place a roll of sheepskin, or other soft material, around the back part of the fetlock, to prevent the feet from irritating the bruise. Then apply hot water to the elbow until the inflammation subsides, when the lameness will usually disappear. But, to remove the enlargement, make a free incision low down to allow the fluid to escape; then apply some irritating substance to cause it to slough out. After it heals and there is a small nodule left, dissect it out and treat as an ordinary wound. Widen the stall and allow plenty of room for the animal to lie down.

SHOULDER SLIP, OR SWEENY.

This disease, generally termed "sweeny," consists in atrophy, or waisting away, of the Antea and Postea Spinatus muscles. A brief description of the parts forming the shoulder

joint will facilitate an understanding of the matter. The glenoid cavity, or hollow in the lower end of the shoulder bone, is very small compared to the head of the humerus, which plays within it, thus giving it great liberty of motion, especially as the joint is not bound down with inelastic ligaments, but by muscles and tendons only. The Antea and Postea Spinatus muscles occupy the outer surface of the shoulder blade and extend down over the external and lateral surface of the joint. The Sub-Scapularis muscle occupies the inner



SHOULDER SLIP, OR SWEENY.

surface of the shoulderblade and extends down over the inner and lateral surface of the joint. The Coraco Humeralis muscle extends down over the front of the joint. So it will be seen that, when the external muscles are wasted away (atrophied), there is nothing left strong enough to hold the joint to its proper position, and it has an outward movement or slipping —but not a dislocation. It may be caused by a bruise; heavy pulling; or walking on uneven ground, as the furrow horse is compelled to do while plowing. It is more frequently seen in young horses, used for plowing, especially in the spring when the muscles are sott and flaccid.

SYMPTOMS:—There are generally swelling, heat and tenderness, all along the external surface of the shoulder blade; but in the majority of cases the patient shows no lameness until

the swelling and heat have subsided and atrophy, or wasting of the muscles, has begun. This generally takes place in a week or two from the time of the injury. The hollow space is usually the full length of the shoulderblade, and is sometimes very deep, so that the spine of the bone is prominent.

TREATMENT:—During the inflammatory stage, while there is heat and swelling, foment well with hot water; and after the swelling has disappeared, apply a mild stimulating liniment, as Scotch Oil, or—

Ammonia, one ounce.
Turpentine, two ounces.
Sweet oil, five ounces. Mix.

Or,—

Oil of Cedar, one-half ounce.
Oil of Tansy, one-half ounce.
Oil of Hemlock, one-half ounce.
Oil of Wormwood, one-half ounce.
Alcohol, ten ounces. Mix.

Use three times a day, rubbing in thorougly. Do not be afraid of rubbing as it stimulates the muscles to development. Use at light work on level ground, or turn out to pasture, for the patient needs exercise to develop the muscles. Do not be discouraged, but be persistent in your treatment, as it frequently takes six months, and sometimes a year, before the hollow is filled up and the muscles fully developed. If it seems very slow apply at intervals the following—

Vaseline, one ounce.
Bin Iodide Mercury, one drachm.
Cantharides, one and one-half drachms. Mix.

If you are persistent success will crown your effort and reward your trouble.

SHOULDER LAMENESS.

Shoulder lameness may arise from different causes, but the most frequent are kicks, bruises, sprains and rheumatism. It is characterized by the peculiar manner in which the patient holds the leg, which is flexed and resting upon the toe; also, the great difficulty with which the leg is brought forward in

walking with, at the same time, a dragging of the toe. If from kicks or bruises the lameness will be observed at the injured place; but if from sprain of the Coraco Humeralis muscle, which plays on the front of the joint in the form of a tendon, there will be observed flexing of the limb and great difficulty in bringing it forward, with swelling heat and tenderness upon pressure at the point of the shoulder. As inflammation of a tendon frequently results in formation of bone material, you will readily see the need of prompt and careful treatment.

TREATMENT:—Put on a very high heeled shoe and apply frequent fomentations of hot water; or place a rug on the point of the shoulder and keep applying hot water until the inflammation has subsided. Then remove the shoes and keep quiet on a level floor and apply the following three times a day—

Tincture Iodine, two ounces.
Witch Hazel, two ounces.
Alcohol, four ounces. Mix.

Or,—

Oil of Cedar, one-half ounce.
Oil of Hemlock, one-half ounce.
Oil of Wormwood, one half ounce.
Tincture Iodine, one ounce.
Alcohol, eight ounces. Mix.

Allow the patient to rest for sometime and use only at light work for at least four months.

RHEUMATISM.

This is a peculiar disease, and none to thoroughly understood. It attacks the fibrous structures, such as muscles, tendons, etc. It is apt to move suddenly from one joint to another, from one set of muscles to another, or to some internal organ, as the heart. It is seldom that acute rheumatism terminates in chronic rheumatism or that the reverse occurs. Chronic rheumatism is met with most frequently among the domesticated animals.

SYMPTOMS:—The patient will appear dull and stupid with an inclination to be let alone and not to be moved about. If the affection be in the limbs or joints and the animal be forced to move, it either goes very lame or is very stiff. The parts

affected may be swollen and hard, or, if in the joint, soft and fluctuating; or there may not be any swelling, but a crackling noise at the joints when moved. There is generally fever with a full hard pulse, increased temperature, hurried breathing, costiveness and scanty, high colored urine. If acute rheumatism, the disease will generally terminate in about six or eight weeks; but, if chronic, it may last until warm weather comes.

TREATMENT:—Give as a physic—

Aloes, one ounce.

Ginger, one drachm. Mix.

Administer at one dose; and, if the pain be excessive, give ounce doses of laudanum, to be followed by—

Acetate of Potass., one ounce.

Bi-Carbonate of Soda, one ounce.

Nitrate of Potass., one and one-half ounces. Mix.

Make twelve powders and give one powder three times a day. Apply hot cloths, or hot bran, or hot corn, or use Scotch Oil; or make the following liniment—

Aqua Ammonia, two ounces.

Spirits Turpentine, two ounces.

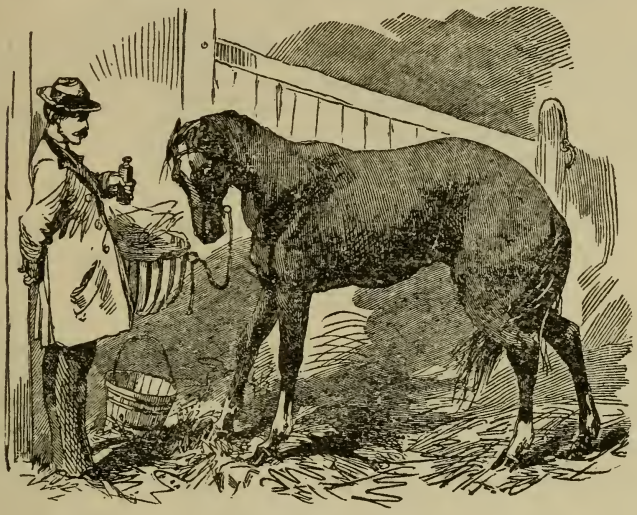
Sweet Oil, four ounces. Mix.

Apply two or three times a day. But there is no liniment for rheumatism equal to Scotch Oil. You may also give, with benefit, Liq. Ammon. Acet., two ounces three times a day; but the treatment is seldom very satisfactory.

SPRAINED BACK.

Sprained back is not of frequent occurrence, but it may happen from the hind feet slipping while the animal is pulling hard to start a heavy load, or from its struggling when cast in the stall. The Psoas muscles, which are the seat of the sprain, are situated underneath the lumbar vertebræ, and are attached anteriorly to the heads of the last ribs and dorsal vertebræ and posteriorly to the brim of the pelvis and internal trochanter of the femur; their action is to bend the haunch upon the pelvis, and, when the horse is pulling, to produce the appearance of a "roached back." When sprained these muscles lose their tone and power, and instead of a "roached back" there

will be the reverse, except there be swelling over the loins, which is frequently the case. If both the Psoas muscles are strained the animal will be unable to rise from a recumbent position, though when placed on its feet, it may stand; it will walk with a drunken, staggering gait and a knuckling over of the fetlocks. It is easily distinguished from broken back by the power to move its limbs, and the sense of feeling in the



SPRAINED BACK.

hind extremity. Examination per rectum reveals heat and swelling, with pain upon pressure along the spine. After these symptoms have passed away and the animal is restored to usefulness there will be a weakness of the back for some months, or until the muscles are again fully developed and regain their natural power and tone.

TREATMENT:—If the patient is able to stand, place the slings under it, but if unable to stand you had better let the slings alone. Apply frequently hot fomentations across the loins and afterwards use Scotch Oil, or—

Aqua Ammonia, one and one-half ounces.
Turpentine, one and one-half ounces.
Olive Oil, five ounces. Mix.

Or, —

Tincture Iodine, two ounces,
Oil of Hemlock, one-half ounce.
Oil of Wormwood, one-half ounce.
Oil of Organum, one ounce.
Alcohol, four ounces. Mix.

Apply three times a day. If the patient is dragging along and not improving very rapidly, in the course of a month apply a good blister across the loins and it will help materially to develop the muscles and to regain their natural tone and power. A blister may be applied every two or three weeks; the following will answer nicely—

Vaseline, two ounces.
Bin-Iodide Mercury, one and one-half drachms.
Powdered Cantharides, two drachms. Mix.

STRINGHALT.

This disease consists of an involuntary spasmodic contraction of the muscles of the hind leg. The horse raises and lowers the foot in a peculiar manner, with a quick jerky motion, which it cannot control. The causes are not thoroughly understood. It is by some attributed to injuries.; by others to inflammation of the nerves; and others still attribute it to tumors variously situated,—as in the brain, in the spinal cord, in the muscles of the legs, etc.; and some attribute it to a peculiar condition of the blood. These theories are all suppositions; possibly all are, to a certain extent, true. The disease generally comes on very slowly but may develop very rapidly, even in so short a time as twenty-four hours. At first the foot may be slightly elevated, with a quick jerking motion, and brought to the ground in the same manner. This may be noticed in the winter season and during the heated months the animal may travel all right. When this is the case it may be regarded as a rheumatic form of stringhalt. If it does not improve during the summer months, as age advances the disease gradually continues to grow worse, until it strikes the belly with the fetlock. The disease is purely nervous in nature, as, for instance, should the animal pick up a nail with the foot, the stringhalt is manifested in a severe form, and

extreme pain is manifested. Except for the rheumatic form, there is no treatment that will benefit the patient. In that

STRINGHALT.

case treat for rheumatism; or when first noticed, give strychnia in full doses for a few months.

TRAUMATIC INFLAMMATION OF THE JOINTS, OR OPEN JOINT.

An open joint may be caused by a puncture from a knife, from splinters of wood, or from the prongs of a fork; or by bruises, by kicks, or by lacerations from falling on a hard or rough surface. It is always attended with more or less danger.

SYMPTOMS:—If the opening is small with but a trifling leakage from the joint, the patient will not at first exhibit any distressing symptoms; but in the course of a few days it will manifest pain by going very lame and, possibly, not resting upon the limb at all but holding it up and keeping it in continuous motion on account of severe pain. The leakage

will then be more profuse and accumulate on the outer edge of the wound. The patient will now lose its appetite and have very high fever with constipation. The pulse will be quick, hard and wiry; and, from extreme pain, the patient will break out in a sweat. If at this stage the patient does not receive prompt attention, the disease will continue in force, and from between the opening and the accumulation on the outer edge of the wound a thin watery discharge, accompanied by streaks of blood and small scales of cartilage and bone, will issue. The ends of the bone entering into the formation of the joint are now undergoing a destructive change; and a cure can only be effected by a consolidation of the joint. A stiff joint is inevitable; and if it be a joint requiring great motion the patient had better be destroyed. During the whole time the tissues surrounding the joint will be enlarged and inflamed, sometimes very hard and at others soft and doughy.

TREATMENT:—Two things are very essential to a favorable termination. The first is endeavoring to heal the wound by the adhesive process (or first intention) and thus prevent suppuration. The second is preventing the air from penetrating the joint, thus avoiding extensive inflammation. Never probe around in the wound to find if there be any dirt, gravel or any other foreign substance lodged there; but wash it out carefully with a sponge and syringe with tepid water; if any foreign substance be found remove it carefully. If the tissues are lacerated cut off the small particles that will not adhere, but do not cut the skin and bring the edges of the wound together with stitches of cat-gut; then place half a tea spoonful of Iodoform upon the wound and bandage. Immediately after place the animal in slings, as it not only affords the patient complete rest but prevents the stitches from being torn out by the flexing of the limb in lying down. If complete union is effected and there is enlargement of the joint with some inflammation, apply a good blister or Scotch Oil according to directions. If there is not complete union of the parts and they burst out, and the synovia, or "joint oil," comes oozing out, accompanied by pus, you then only can expect to heal by granulation. The best method to secure this is to apply a good blister, as it not only sets up a healthy inflammation but frequently produces a swelling sufficient to bring the edges of

the wound together, thus excluding the air and, before the swelling subsides, forming granulations enough to close the wound, and so effecting a cure. The following is a good blister:

Vaseline, two ounces.

Powdered Cantharides, four drachms. Mix.

Apply every third day for four applications. If much swelling remains after the wound is healed apply Scotch Oil. If small abscesses form around the joint and cause much pain open them; if they do not cause much pain, allow them to burst. The constitutional treatment should be to open the bowels with a physic,

Aloes, one ounce.

Ginger, one drachm. Mix.

Give at one dose. Then give three times a day one powder of the following:

Quinine Sulph, four drachms.

Nitrate of Potass., one ounce.

Bi-Carb. Soda, one ounce. Mix.

Make into twelve powders. For the first few days feed on a soft diet, as bran mash, chopped feed, etc. Afterwards feed on the most nutritious diet in limited quantities to build up the strength. If the appetite is poor give Scotch Compound three times a day.

ARTHRITIS, SYNOVITIS, OR INFLAMMATION OF THF JOINTS.

This may be due to sprains of the ligaments extending into the joint and adjoining the synovial membrane; to concussion of the bones extending to the joint; to wounds admitting air into the joint; to rheumatism; to scrofula; to calcareous deposits in the joints, etc. From whatever cause the whole joint becomes involved and the symptoms have such a close similarity that they may be considered alike.

Symptoms:—The joint will be swollen and of a doughy consistency. There will be lameness with more or less fever, according to the severity of the attack. If the joint is moved the patient will exhibit excruciating pain. Sometimes the animal will hold the foot clear of the ground in a fixed position. Often from pain the patient will break out in a sweat, the fever running high and the pulse being quick and

wiry. The tissues surrounding the joint become greatly swollen, with increased heat and tenderness of the parts.

TREATMENT :—Place the patient in slings and give a physic to open up the bowels. Then apply hot fomentations to the joint frequently with flannel bandages, and the following every three or four hours :

Sulphuric Ether, two ounces.

Laudanum, two ounces.

Tincture Belladonna, one ounce.

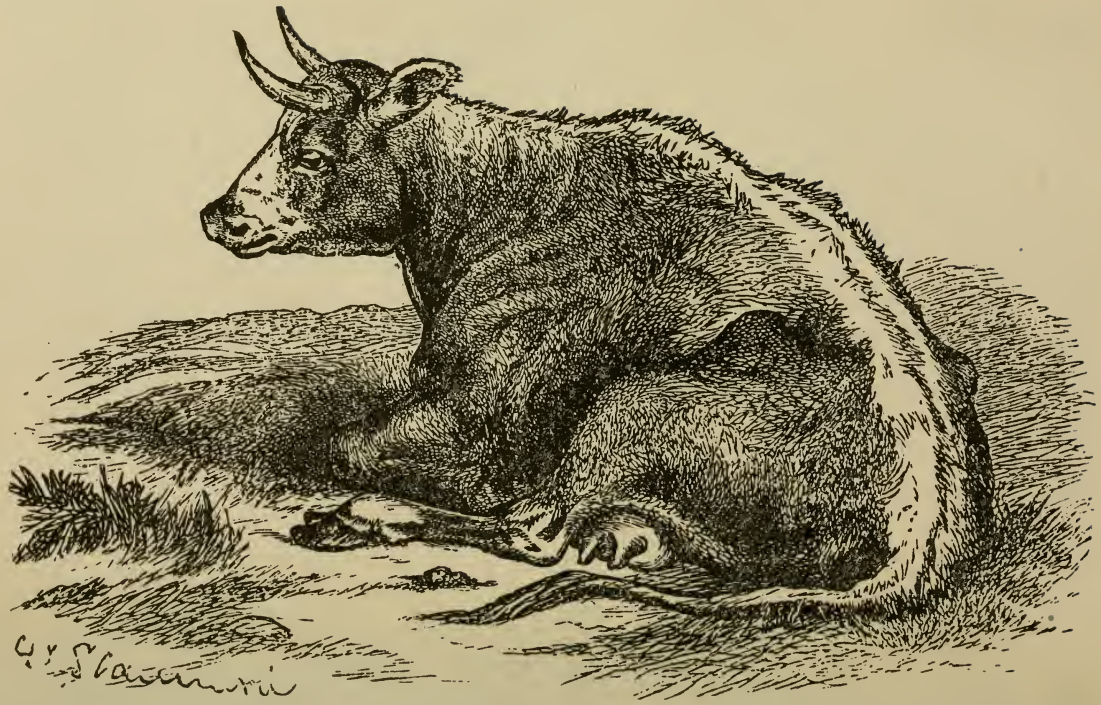
Tincture Aconite, one ounce. Mix.

If this does not quiet the pain and the swelling is obstinate, apply a blister—such as for open joints, and administer three times a day half ounce doses of Fluid Extract Buchu and Juniper, with Acetate of Potassium.

RICKETS.

This is not an inflammatory disease but consists of a softening of the bony structures. It is most frequently seen in young animals, those from a few days to a few months old. The real trouble is a lack in the bones of such inorganic material as the phosphate and carbonate of calcium. Whenever the bones become deficient in these materials they are cartilaginous in texture and easily bent; in this way occurs the deformity of rickets. The causes are mal-nutrition, or a deficiency of the elements necessary to build up the already deficient bony structure. Although hereditary in its character it may be developed by not allowing the colt to suck the mare at will only permitting it, perhaps, to suck three times a day when the mare, hot and feverish, returns from work. Such treatment will cause irregularities of the bowels, the milk passing through them in a half digested curd-like mass, white in color and very sour to the smell. This will cause great depletion and rickets is the result.

TREATMENT :—Feed regularly on good nutritious diet; change the pasture; bandage the legs to keep them straight; give small doses of phosphate of lime; keep in a dry, sunshiny, airy place; give cod-liver oil and, to check the scouring, four to six ounces of castor oil.



DISEASES OF CATTLE.

ABORTION.

This disease is becoming more prevalent in this country since the introduction of the finer breeds of cattle. Some years ago the abortion of a cow, except through injury, was rarely heard of. Since the finer breeds have become pretty widely distributed abortion is more and more prevalent. Possibly these cattle are inbred to such an extent that it produces a weakened system—especially weak in the generative organs. Or, derangement of the digestive organs by the feeding of highly nutritious and artificial foods may produce a sympathetic derangement of the generative organs. Another cause may be found in the construction of the modern stable, with its deep receptacle for urine and manure, into which, possibly, the hind feet of the cows slip, thus inducing abortion. These matters cannot be too carefully analyzed; and I am of the opinion that here may be found some of the principal causes. When one cow in a herd has aborted she should be removed immediately, as her condition excites sympathy in the others, which affecting the generative organs, more abortions may follow. Other causes producing abortion are feeding smutty or diseased rye; colic; some cows constantly "bulling" others in the herd and leaping upon them; or injuries from various sources. We must distinguish between abortion and premature labor. The term abortion should be used when the cow loses her calf during the first six months of pregnancy; the term "premature labor" is applicable after the first six months are passed. The one should not be confounded with the other, although abortion is as dangerous as premature birth, and vice versa. Sometimes breeding cattle are sold under a guarantee that they have never aborted and the purchaser, ignorant of the fact that "premature birth" is the term used during the last three months of

pregnancy, buys some that have had premature birth and, when too late, regrets his purchase. Anything which will produce excitement of the nervous system is liable to produce abortion.

SYMPTOMS:—Sometimes abortion is so easily produced and performed with so little difficulty that it has no premonitory symptoms, whatever. But, after it has taken place, there will be observed a falling in of the flanks and a discharge from the vagina, sometimes emitting an offensive odor. Sometimes premature birth occurs with the same ease, but, more frequently, the animal will appear dull; with loss of appetite; suspended rumination, bloating; dark colored discharge from the vagina of a fœtid odor; sometimes protrusion of the membranes; pulse quickened, small and wiry; more or less uneasiness, with straining and a disposition to seek a place of seclusion.

TREATMENT:—If the fœtus is expelled within the membrane and without difficulty, little or no treatment is required, but if the membranes are retained they should be removed mechanically. (See Retention of Placenta.) If the patient cannot expel the fœtus and there is a fœtid smell or the membranes protrude, the calf should be delivered at once and the membranes immediately removed. Should the mouth of the womb be closed and not dilated, grease it thoroughly with extract of Belladonna, and in the course of twenty or thirty minutes it will be found dilating. You should then assist the dilation with the hand and remove the contents. Afterwards wash out the womb with a solution of Permanganate of Potassium—one drachm to a gallon of warm water. Afterwards give three times a day the following, for two or three days—

Aromatic Spirits of Ammonia, one ounce.
Tincture Ginger, one ounce.
Warm Beer, one quart. Mix.

At first administer a physic—

Epsom Salts, one pound.
Powdered Ginger, one-half ounce. Mix.

Give in half a gallon of warm water; and give Scotch Compound twice a day for two or three weeks and feed on soft feed.

ULCERATED TONGUE.

Ulcerations of the tongue, fauces and cheeks occur from inflammation excited by injuries; diseased teeth; lodged food, corn-cobs or sticks between the teeth in the mouth; by trying, whilst the animal is choking, to force apples, potatoes, or other substances down the throat with a stick.

Symptoms:—Constitutional disturbances will be noticed from the very first, as the animal experiences great difficulty in masticating and swallowing food. Emaciation will follow, attended by a rough staring coat, sunken eyes and a dejected appearance generally. On examining the mouth the cause will appear in the form of one or more ulcers on the back part of the tongue or fauces, having a ragged appearance and emitting a sour, disagreeable smell.

Treatment:—Feed on soft nutritious diet with Scotch Compound. With a sponge or cloth fastened to a stick apply to the ulcers the following, once a day:

Sulphate of Zinc, one drachm.
Butter of Antimony, one drachm.
Alcohol, eight ounces. Mix.

Or,

Nitrate of Silver, one-half drachm.
Water, eight ounces. Mix.

Or,

Chloride of Zinc, one drachm.
Water, ten ounces. Mix.

Keep in a cool place and allow plenty of cool drinking water. A cure will generally result.

DIARRHŒA.

Diarrhœa is observed in cattle as well as in all other animals, and its causes are many and various. Among them are eating irritating substances; eating to large quantities of food; eating to excess of sloppy bran or linseed meal; change from dry to green food; the injudicious or continued use of purgative medicines; indigestion or disordered stomach. Diarrhœa in calves may be caused by giving very rich milk in large

quantities, or by feeding sour milk; the latter curdles in the stomach, and passing on into the bowels in a half digested state, acts as an irritant, producing what is known as the "white scours." Whilst diarrhœa is a disease, it is sometimes a boon to the animal, being nature's effort to cast off some deleterious matter that has impregnated the system.

SYMPTOMS:—The most prominent symptoms are a copious discharge, of a liquid consistency, from the bowels, accompanied by flatulence and continued straining; sometimes a good appetite, but more frequently it is diminished; cramping pains; staring coat; and the animal will stand all drawn up; if the patient be a calf whose diarrhœa is caused by sour milk the fæces will emit a sour odor; the animal will lose flesh rapidly and have a dejected appearance generally.

TREATMENT:—To much cannot be said against the use of astringent remedies at the commencement of diarrhœa, unless the cause be known to be the use of purgatives, bran or linseed meal. The reason for this is that there is generally within the bowels some irritant which nature is trying to expel. Instead of giving remedies to prevent it, give half a pint or a pint of linseed or castor oil to aid in removing the offending object, it will usually effect a cure. If not, you may then resort to astringents and give one of the following, every four or five hours until a cure is effected—

Tincture Catechu, two ounces.
Tincture Kino, two ounces.
Tincture Opium, two ounces.
Tincture Ginger, two ounces. Mix.

Give two ounces at a dose in a little water as a drench; or,

Powdered Chalk, one ounce.
Powdered Catechu, three darchms.
Powdered Kino, one drachm.
Powdered Opium, one-half drachm. Mix.

Give at one dose; or,

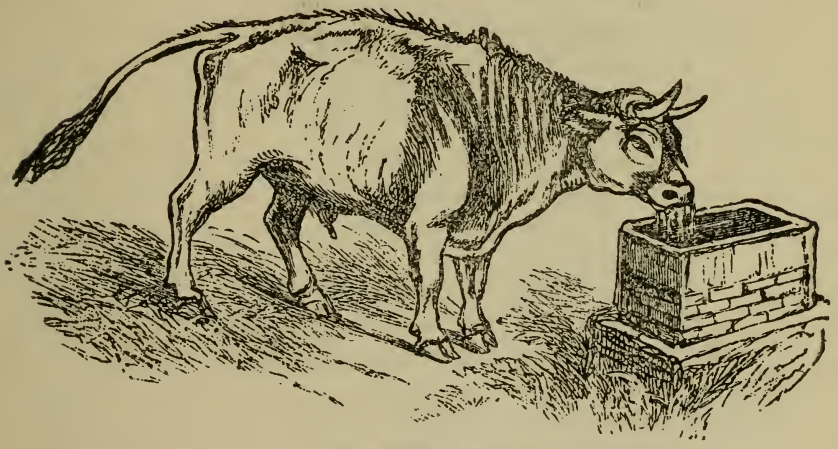
Prepared Chalk, six drachms.
Powdered Opium, one drachm.
Tannic Acid, one scruple. Mix.

Give at one dose. If, after giving these remedies, the

bowels become too much constipated, give a pint of raw linseed oil, or castor oil. Feed on dry feed, give no grain and limit the amount of drinking water to half gallon at each drink. For calves give one-fourth the amount prescribed above.

ACUTE DYSENTERY.

This disease consists in an inflammation of the mucous membrane of the bowels, with ulceration and hemorrhage, and is sometimes called bloody flux. It is very often the sequel to diarrhœa and has similar causes. The symptoms, too, are about the same, only of a more aggravated form. There is great constitutional disturbance with a liquid or watery discharge, intermingled with blood, from the bowels. The animal appears very dull, with clammy mouth, flurred tongue; sunken eyes, discharging a thin, watery or mattery discharge; rapid,



ACUTE DYSENTERY.

small and wiry pulse; dry, harsh, staring coat; great emaciation, with a hidebound appearance. The animal grunts, grinds its teeth and stands with its back arched. Pain in the bowels is manifested by uneasiness and frequent straining; the straining is sometimes, so hard that it forces the bowel out, when it presents a red and inflamed appearance. Sometimes, but not always, there is considerable bloating on the left side. The horns, limbs and ears are cold. If a cow, she loses her

milk. Loss of appetite is noticed, with suspended rumination and increased desire for water.

TREATMENT:—Place the animal in a good, comfortable place, well bedded, and blanket well. Feed choice, clean, nutritious food and allow drinking water sparingly. Give the following—

Castor Oil, one pint.
Powdered Opium, one drachm.
Powdered Catechu, one drachm. Mix.

Give at one dose, and afterwards give every four or five hours, till the bowels stop running off and the patient stops straining, of the following—

Calomel, one-half drachm.
Powdered Opium, two scruples.
Powdered Kino, one drachm. Mix.

Give in a pint of linseed tea; or,

Powdered Opium, two scruples.
Prepared Chalk, five drachms.
Powdered Catechu, four drachms.
Ginger, two drachms. Mix.

Give in a quart of linseed gruel; or,

Muriate of Morphia, ten grains.
Powdered Camphor, one drachm.
Prepared Chalk, six drachms.
Whites of three hard boiled eggs. Mix.

Give in a pint of linseed or oatmeal gruel; or,

Tincture Opium, one ounce.
Tincture Catechu, one-half ounce.
Tincture Kino, one-half ounce.
Pure Carbolic Acid, thirty drops.
Sweet Spirits of Nitre, one and one-half ounces. Mix.

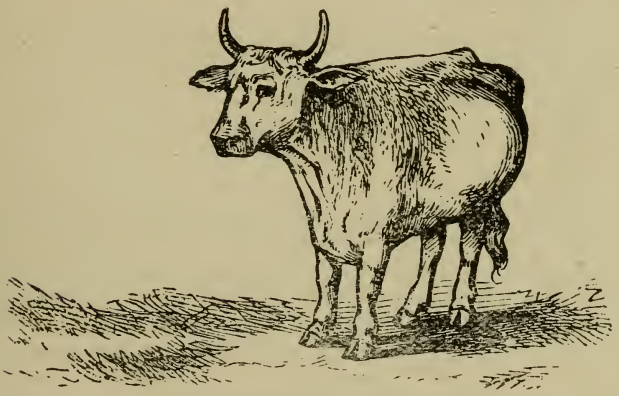
Give in a pint of linseed gruel.

Sometimes acute dysentery subsides and takes a chronic form, when the length of time for recovery will be prolonged. Select one or two of the foregoing prescriptions containing chalk and continue its use twice daily; the results will be very satis-

factory. But, if the chronic form is the result of old age and general debility, the bowels become so weakened that any treatment is of little avail and death closes the scene.

TYMPANITIS, HOVEN OR BLOATING.

This is a common disease, or rather accident, among cattle and has been pretty generally observed by almost every person who is in the habit of keeping or handling them. The complaint is usually observed in cattle which are greedy eaters and have just been turned out to feed on red clover pasture of rank growth and covered with moisture or dew. The greedy animal eats more than the stomach can handle and force up for mastication. In the rumen, or first stomach, which is merely a receptacle for food, a fermentation takes place, gasses are



ACUTE TYMPANITIS OR BLOATING.

formed and the paunch is distended to an enormous size and is noticed on the left side. If relief is not speedily obtained rupture of the stomach or bowels takes place and death ensues. Cattle that have been fed on dry feed, and are turned upon green pasture that is wet from rain or dew, are most liable to become affected. Great care should, therefore, be exercised in not allowing the cattle to eat too much such grass before being removed to a place of confinement where they may ruminate or "chew the cud." Cattle fed on frozen turnips, carrots or other roots, are subject to tympanitis. So, also, cattle which are choking, or have any foreign substance within

the œsophagus, are liable to bloat; but on removal of the obstruction the bloating disappears. I have seen a case where the cow had attempted premature birth. The calf was dead and partially decayed within the womb; rumination was suspended; appetite lost; rough coat; dejected appearance generally. Bloating was a prominent symptom. An examination by the vagina revealed the cause.

SYMPTOMS:—The symptoms are developed very rapidly. After being turned on clover or wet grass a swelling appears on the left side and gradually increases in severity. The bloating becomes greater, breathing is most difficult and the patient moans and grunts; the eyes become blood-shot; saliva drivels from the mouth; the back is arched. The animal seems riveted to the spot on which it stands, or staggers around and falls to rise no more.

TREATMENT:—If the case is not too far advanced give the following at one dose—

Aqua Ammonia, one ounce.
Tincture of Ginger, two ounces.
Tincture of Anise, one ounce.
Water, one quart.

Afterwards place a large gag in the mouth to keep it wide open and fasten it there by ropes tied around the horns or neck; this will permit the free outlet of eructations of gas from the stomach. If the symptoms increase in severity it is best to tap the stomach with a trocar and canula, which is done as follows: Fasten the animal so that it cannot get away, then shove the beast against the stall or fence. Then, standing on the left, somewhat in front to prevent being kicked, measure about half way between the last rib and the hip bone, and about six inches from the lumbar vertebræ. Now plunge the instrument inward and downward and withdraw the trocar leaving the canula, through which the gas will come rushing out. The canula may be fastened there, and, if necessary, kept in position for twenty-four hours. The trocar and canula should be eight or nine inches in length and three-eighths of an inch in diameter. If you have no instrument use an ordinary jack knife, as there is very little danger from such an operation. After discharging the gas, to empty the stomach, give the following—

Epsom Salts, twelve ounces.
Sulphate of Soda, twelve ounces.
Powdered Ginger, four drachms.
Water, one gallon. Mix.

Give immediately. Sometimes the hollow probang is introduced into the stomach, to allow the gas to escape; but this is not very practical, as you cannot allow it to remain in very long and the opening is liable to become plugged with food. After giving the physic you may give some brandy, whiskey or ale to tone up the stomach.

ALBUMINURIA, INFLAMMATION OF THE KIDNEYS, OR BRIGHT'S DISEASE.

This disease is not very frequent, except as the result of injury, when it sometimes occurs in a violent form. Still it may arise from bad feeding, from feeding poorly matured or marsh hay, which causes derangement of the digestive organs and irritation of the kidneys through reflex action of the brain. This form is seldom observed among the lower animals. But when an injury is received upon the brain or spinal cord Albuminuria is frequently the result.

SYMPTOMS:—Generally the first symptoms observed are the animal's standing with its legs gathered under it, and the back arched; or the legs will be somewhat stretched out, the hind legs wide apart, and the back sunken or straight. The animal is loath to move, appears stiff, and if compelled to move does so with a painful, straddling movement. The bowels are usually constipated and the breathing accelerated. The urine is thick and dark colored, and sometimes passed with difficulty; if tested for albumen it will be found in varying amounts. The attack is usually very sudden, and, if not speedily relieved, the patient usually dies from blood poisoning.

TREATMENT:—If there is inability to void the urine it should be drawn away. In the cow this is easily done with a straight catheter; but in the ox, owing to the curvature in the penis, it can only be done by making an incision into the urethra below the anus, through which pass the female catheter. Then immediately give a strong physic to unload the bowels and keep their contents in a liquid state, to relieve the kidneys of a share of their work. Give the following—

Epsom Salts, sixteen ounces.

Sulphate of Soda, twelve ounces.

Ginger, one ounce.

Warm Water, one and one-half gallons.

Keep hot cloths across the loins and occasionally rub Scotch Oil across the region of the Kidneys. Keep in comfortable place, and feed on a soft nutritious diet. Give the following every three or four hours—

Strychnia, twenty-four grains.

Hydro-Chlorate of Morphia, thirty-six grains.

Tincture Per-Chloride of Iron, six ounces. Mix.

Dose, one ounce in a pint of water. This should be continued for a week or ten days.

ANTHRAX, BLACK LEG OR QUARTER ILL.

This disease is known by several names, but the affection is the same nevertheless. It is very seldom seen in the eastern or middle states, but on the ranges in Dakota, Montana, Nebraska and those western states and territories, where the cattle have to gather their own fodder during the greater part of the year, it is quite prevelent. Where cattle are compelled to live out doors and gather their own food during the winter season they are exposed to all kinds of weather, and sometimes have a very scanty living, on account of the ground being covered with snow. The result is they become so poor as to barely be able to walk in the spring. When the snow leaves and the weather turns warm a very luxuriant growth of grass starts up, affording the very finest kind of nutritious food. The cattle flesh up very rapidly. A superabundance of blood is formed in the system. Fever sets in, complicated with eruptions or sloughing of the tissues, and death usually results. Sometimes one will appear in perfect health, and the following day it will be seen to be lame in one quarter. That quarter will begin to swell, and, on examination, it will be found to be black in color and to emit a crackling sound from under the skin as if filled with air. Putrefaction sets in and the animal dies in from one to four days, and in the greatest misery. Sometimes this disease is more prolonged and not so severe in character. In such cases there will be swellings at

different parts of the body or on the limbs, emitting a crackling noise when pressed upon. There will also be an eruption upon the mucous membrane of the mouth and tongue, The animal is somewhat costive and what dung is passed is covered with blood. The urine is scanty and high-colored. Breathing is difficult. The animal walks as if stiff and sore, The thirst is intense, with entire suspension of rumination. The ears, horns and legs become cold. Sloughing of the swollen parts takes place and the animal usually dies from blood poisoning. Treatment is usually unsatistactory and seldom attempted. Prevention is the cure that should be looked to. The best mode is not to let the cattle fatten too rapidly. When they cannot be herded so as to fatten slowly a seaton should be inserted through the dew-lap. This will keep up a constant drain on the system and there will seldom be any trouble from black-leg.

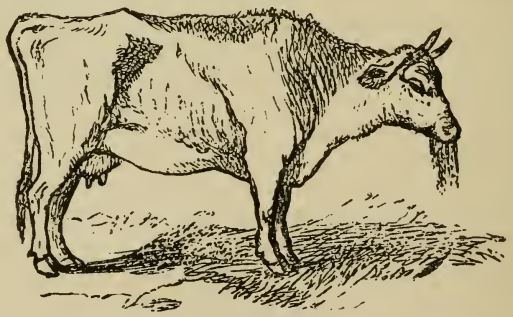
PLEURO-PNEUMONIA CONTAGIOSA.

For forty years, or so, this disease has been noticed in different parts of the Eastern States but through precautionary measures it has not become at all widely spread in the rest of the country—for which stock-owners may be deeply thankful. The means now employed to prevent the spread of the disease by quarantining imported cattle for a period of three months will, no doubt, lessen, if not completely check, the ravages of this malady. Floating rumors sometimes declare the existence of Contagious Pleuro-Pneumonia in some of the Western States; but upon the best authority I am informed that upon thorough examination, both ante and post mortem, by qualified veterinary surgeons, such rumors fail to establish themselves. At the same time considerable alarm may exist. Pleuro-Pneumonia Epizootica is as contagious among cattle as small-pox is among men. Bedding, feed, blankets. manure—in fact, anything used around an animal affected with Pleuro-Pneumonia—brought in contact with a healthy animal are liable to communicate the disease. The period of incubation varies with different animals. The disease may develop in a week or ten days and may not appear under twelve or fifteen weeks,—though during this time there will appear some symptoms. There may be a slight husky cough, pulse somewhat accelerated, with a raise in temperature to possibly 103° F.

Yet the animal may thrive and lay on flesh and, if a milch cow, the flow of milk may not be diminished. After the disease becomes further advanced respiration is quickened, the temperature reaches 108° F., appetite ceases, rumination is suspended; the mouth is hot; there are chills with more or less shivering; milk diminishes; bowels are constipated; urine is high-colored; breath somewhat offensive; pulse accelerated to possibly one hundred or more per minute; coat staring, with yellow skin. The cough becomes more frequent and troublesome; the nostrils are dilated, with a slight offensively smelling discharge; there is great emaciation; on applying the ear to the wind-pipe a rushing sound of air is heard; at the base of the lungs a loud sound may be heard, but still further back, on account of the infiltration or consolidation of the lung tissue, no sound at all or only a wheezing sound can be heard. If the disease be confined to one side or to one lung only, on the opposite side the respiratory murmur is much louder on account of the double work on that side. No treatment should be attempted but the infected animals should be destroyed and their carcasses burned, as soon as the identity of the disease is established beyond doubt, in order to prevent the spread of the contagion.

EPIZOOTIC APHTHA, OR FOOT AND MOUTH DISEASE.

It is proper to state here that a simple form of aphtha



EPIZOOTIC APHTHA, OR FOOT AND MOUTH DISEASE.

appears in young animals during dentition, when small vesicles

or blisters break out around the mouth, on the tongue, and sometimes around the feet. But this is in no way contagious and calls for little or no treatment except the application of some healing lotion. But Epizootic Aphtha is a different disease and highly contagious, often fatal; and like small-pox and measles in man is seldom seen twice in the same individual. It is purely an eruptive fever and destined to run a certain course, until a favorable termination may be reached, despite all treatment.

Symptoms :—The symptoms vary in intensity according to the condition, temperament and habits of the animal. It develops rapidly from the commencement and is generally ushered in by a chill which is succeeded by a staring coat, dry cough, quick hard pulse, and a temperature ranging from 103° F. to 106°F.; the appetite is poor and sometimes entirely suspended. Thick ropy saliva drivels from the mouth and, as the vesicles rupture, it becomes mixed with blood. Upon examining the mouth vesicles varying in size will be seen on the tongue, lips and cheeks. The feet are not always attacked, but generally are. If so, there will be swelling around the coronets covered with small blisters, also small blisters between the coronets. The swelling presses the toes apart and, on standing or walking, causes great pain. The blisters or vesicles soon burst, discharge their contents and, in the majority of cases, scab over, Sometimes the teats and udders of cows become affected, break out, swell, and prove a great source of irritation.

Treatment :—Give a mild laxative, as,

Sulphate of Soda, ten ounces.

Ginger, one-half ounce.

Fœnugrec, one-half ounce. Mix.

Give in a quart of warm beer. The mouth should be washed twice or thrice daily with the following :

Chlorate of Potassium, one ounce.

Powdered Alum, one ounce.

Water, one quart. Mix.

If matter forms around the feet apply the following twice daily :

Iodoform, one ounce.

Vaseline, two ounces. Mix.

Grease the parts; or use,

Salycilic Acid, one-half ounce.

Iodoform, one ounce.

Vaseline, two ounces. Mix.

Grease the parts thrice daily and feed Scotch Compound to purify the blood, If the udder is swelled and painful grease with,

Gum Camphor, one ounce.

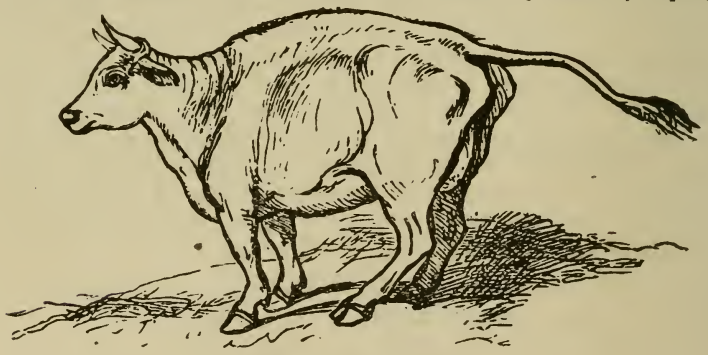
Extract Belladonna, one ounce.

Vaseline, five ounces. Mix.

Use twice daily, or better still, apply Scotch Oil twice daily.

HÆMATUREA, OR BLOODY URINE.

This disease is seen amongst all breeds of cattle and is caused by injuries over the back and loins; by cattle jumping



TRAUMATIC HÆMATUREA.

upon each other; by eating herbs which cause irritation of the kidneys; or by the administration of painful diuretics.

SYMPTOMS:—The symptoms develop very rapidly. The animal appears weak, scarcely able to rise, and when standing the back is arched; there is straining; the animal voids small quantities of urine mixed with blood globules and albumen; pulse quick, small and wiry; appetite and rumination partly suspended; legs and horns are alternately hot and cold; mouth hot; bowels constipated; flow of milk decreased; on applying

pressure along the back the animal evinces pain; if compelled to walk it moves with a straddling gait.

TREATMENT :—Apply hot fomentations across the loins and give the following :

Sulphate of Magnesia, sixteen ounces.
Sulphate of Soda, eight ounces.
Ground Ginger, one-half ounce.
Gentian, one-half ounce. Mix.

Give in a gallon of water at one dose; to be followed with tonics, as,

Tincture Per-chloroid of Iron, one ounce.
Tincture Cinchona, four ounces.
Tincture Nux Vomica, two ounces.
Tincture Opium, four ounces.
Infusion of Quassia, five ounces. Mix.

Give two ounces three times a day. Feed on a soft nutritious diet and give Scotch Compound to build up the system.

CANCEROUS ULCERS.

When the Veterinary surgeon's attention is called to these cases he can do little more than to advise concerning the best mode of destroying the animal. These ulcers generally appear as small hard nodules, situated upon either the upper or lower jaw, principally the latter. Usually they are at first movable, the skin playing over them with perfect ease. As they gradually develop in size they become adherent to the bone and may continue to grow for months before breaking. When one breaks it discharges either a thin liquid or pus and presents an ugly ragged appearance of a fibrous nature and sometimes bleeds profusely, It may partially heal up, then it will swell up and discharge, and lumps of tissue will slough away. Gradually becoming worse it eventually affects the teeth causing them to fall out and establishing an opening into the mouth, through which the food will drop out. There is no special treatment save to fatten the animal for the butcher—that is when the swelling is first noticed. After it has broken and discharged for some time the flesh ought not to be used. Still destroying the animal is a humane act.

PHRENITIS, INFLAMMATION OF THE BRAIN.

Inflammation of the brain usually results from injuries to the head, or as the sequel of fevers caused by eating hot buckeyes; also from indigestion, from exposure to the hot sun, from extensive inflammations of tha ear, etc.

SYMPTOMS :—Sometimes an auimal suffering from inflammation of the brain will appear stupid, pressing its head for a considerable time against a wall, fence or some stationary object, and occasionally running about wildly as if it were both drunk and blind. Others act as though seized with a fit of madness and act fiercely; the eyes are inflamed and staring—constantly watching. The animal in rushing about will fall down in almost any position. The breathing will be slow and the pulse strong and full at first, will gradually decline with throbbing of the temporal arteries. The disease generally occurs during the hot months.

TREATMENT :—Give a brisk physic,

Epsom Salts, twenty-four ounces.
Ginger, six drachms.
Chloride of Sodium, six ounces. Mix.

Put in a gallon of warm water and give at one dose. Bleed from the jugular vein, while the pulse is full, from one to two gallons. Apply ice-cold water to the head constantly. If the limbs are cold apply friction or some stimulating liniment and bandage. Give full doses of Aconite and Bromide of Potassium and as convalescence is taking place apply a good blister on the head back of the horns.

GONORRHŒA, OR CLAP.

This disease is not very frequently met with in veterinary practice, but sometimes occurs and is a source of considerable annoyance to both practitioner and patient. Bulls and cows suffer considerably in passing water. The animal strains frequently and only a small quantity of urine at a time is passed; the animal occasionally stamps its feet and lashes its tail from side to side; the bowels are constipated; if a bull, a swelling appears around the sheath; a discharge of matter, at first light in color and then assuming a thick white or yellowish

white color, is seen dropping away; sometimes the penis swells up and becomes fiery red in color.

Treatment :—As soon as noticed give a brisk physic :

Epsom Salts, sixteen ounces.
Sulphate of Soda, six ounces.
Ginger, seven drachms. Mix.

Give in a gallon of warm water. Bathe the parts well with hot water and into the affected parts inject hot water frequently, or inject the following :

Iodoform, two drachms.
Listorine, six ounces.
Water, ten ounces. Mix.

Use three times a day and give the following :—

Balsam Copaiba, two ounces.
Tincture Cubebs, two ounces.
Spirits of Camphor, two ounces.
Tincture Kino, two ounces.
Morphia, forty grains. Mix.

Give tablespoonful three times a day. If chancres appear they should be touched with Lunar Caustic and afterward covered with Iodoform, twice daily. Cattle thus affected should not be bred until a complete cure is effected, as it is communicable to other animals. Great care should be used in thoroughly cleansing the hands, as the discharge is very poisonous.

CATARRH, OR COLD.

This is a term used to denote an inflamed condition of the lining membrane of the nostrils, sinuses of the head and upper air passages; it may extend to the eyes and throat. The causes are changes of climate, sudden changes of weather, bad ventilation, deficient drainage, being turned from a warm stable out into a cold storm, etc., etc.

Symptoms :—The lining membrane of the nostrils is at first reddened and dry, soon becoming moist with a thin watery discharge. The eye-lids become swollen and red and discharge a watery secretion, soon assuming a mattery appearance. The forehead and butts of the horns are very hot. The animal

snuffles and sneezes and sometimes coughs. The breathing is somewhat difficult. The animal occasionally shivers. Appetite and rumination are partly suspended. The urine is high-colored. Coat is rough and staring. Sometimes a light diarrhœa is present and later on a thick viscid discharge from the nostrils.

TREATMENT :—Give as a mild laxative:

Epsom Salts, twelve ounces.

Ginger, one-half ounce.

Gentian, one-half ounce. Mix.

Give in a half gallon of warm water. Keep the patient in a comfortable place, blanket well and feed on hot mashes. Give one of the following powders three times a day :

Chlorate of Potassium, one ounce.

Nitrate of Potassium, one ounce.

Bicarbonate of Soda, one ounce. Mix.

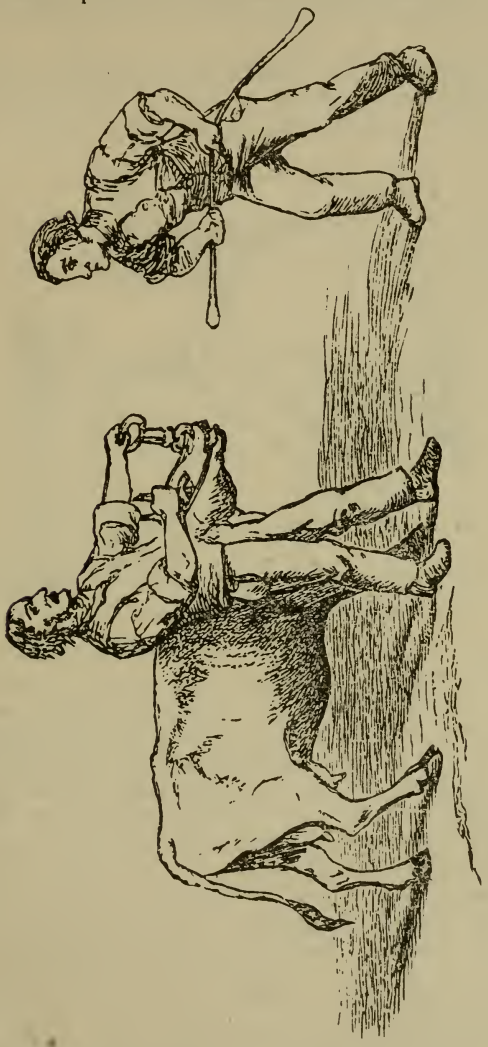
Make eight powders. Better still, give Scotch Compound. If the discharge becomes stopped before a favorable termination is reached, steam the nostrils with scalded bran or oats and add a little vinegar to the hot water.

CHOKING.

This is a common accident among cattle that are fed on such roots as turnips, carrots, potatoes, beets, etc., etc. In greedy eaters it is also caused whilst eating grain or chaff; in the hurry to eat, the food is not thoroughly mixed with saliva, and being swallowed about half dry, it frequently becomes lodged in the œsophagus. Choking also occurs from eating leather, clothing, etc., of which cattle frequently attempt to eat.

SYMPTOMS :—If the obstruction is high up in the throat or in the pharynx the animal will slaver considerably—the saliva running profusely from the mouth. There will be difficult breathing and much uneasiness. The head will be held low down with the nose straight out; sometimes attempts at coughing are made. The eyes are staring and blood-shot. If the obstruction is lower down the neck or within the chest the symptoms are not so severe. The breathing may be but little altered and the slavering greatly less and probably absent. If

the animal attempts to drink and the obstruction is large the

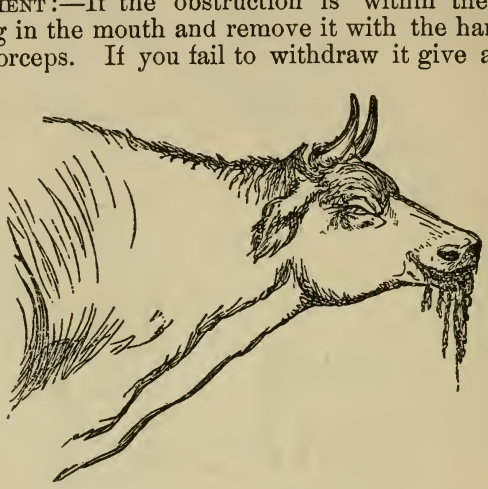


METHOD OF USING THE PROBANG IN CHOKING.

water will be ejected through the mouth and nostrils; but

if the obstruction is small it may pass by it and go to the stomach. Bloating is a prominent symptom—the left side will sometimes be greatly distended.

TREATMENT:—If the obstruction is within the pharynx, place a gag in the mouth and remove it with the hand or with a pair of forceps. If you fail to withdraw it give a half pint



SACCULAR DILITATION OF THE GULLET FROM USING BROOM-STICKS AND WHIP-HANDLES WHILE CHOKING.

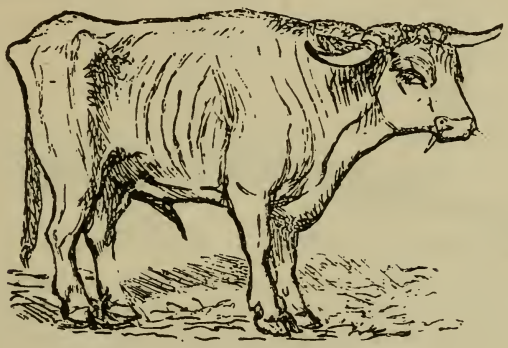
of sweet oil or melted lard; administer carefully and the obstruction may pass downward or be expelled in an attempt to cough. Should this fail or should the animal be in great distress, pass the probang immediately. This should be done as follows: Place a gag in the mouth and have an assistant hold it; then grease the probang and pass it slowly down the throat. When you come to the obstruction press heavily but slowly, and when it starts force it on in the stomach. If the obstruction is low down or within the chest, give six or eight ounces of sweet oil or melted lard, also a quart or two of water, and it will frequently pass on. If it does not, pass the probang; but do not attempt to force it down with sticks or whip-stalks as you are liable to produce great injury, by rupturing the œsophagus. When this occurs and inflammation sets in apply Scotch Oil to the side of the neck and give internally:

Powdered Alum, one half ounce.
Powdered Opium, three drachms.
Warm Water, one pint. Mix.

Give wine-glass full three times a day. Feed on soft feed, allow drinking water at pleasure and fatten for the butcher, as there will always be more or less trouble.

CHRONIC INDIGESTION.

This is a disease of the fourth stomach and is caused by irregular feeding, bad ventilation, feeding innutritious and badly cured fodder, exposure to cold and rain, feeding on marsh grasses, etc.

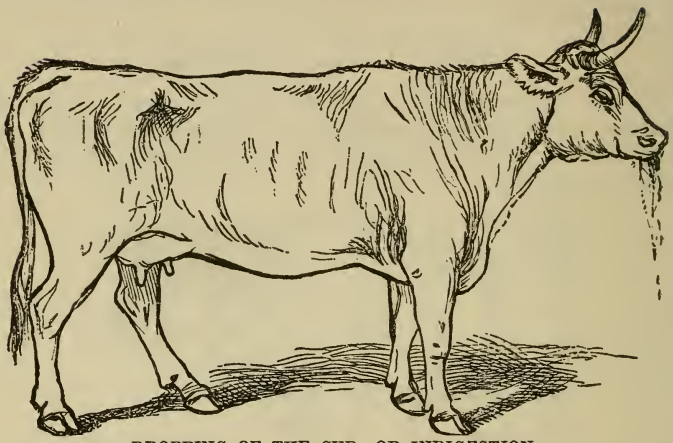


CHRONIC INDIGESTION.

SYMPTOMS:—At first the animal will have a whimsical appetite and eat irregularly; later on they will being eating dirt, filth, dirty straw, manure, etc. The skin becomes harsh and dry, with a staring coat. The dung will be passed in small lumps which will be hard and dry and covered with mucous. The loss of flesh will be rapid and the creature at the flanks will look as thin as a sunfish. The blood becomes depleted, with pallor of the mucous membranes; and if the disease is allowed to progress diarrhœa will supervene and death will result. But if attended to in time a favorable termination may be look for.

TREATMENT:—Put the animal in a comfortable place and give a mild laxative.

Epsom Salts, twelve ounces.
Ginger, one-half ounce.
Gentian, one-half ounce.
Aromatic Spirits of Ammonia, two ounces.
Water, one quart.



DROPPING OF THE CUD, OR INDIGESTION.

Give at one dose, and afterwards give Scotch Compound. Feed on soft, nutritious food in small quantities, often repeated; or feed roots, as turnips, carrots, beets, etc., with a little linseed meal occasionally. Give plenty of fresh drinking water, with a teaspoonful of soda, three times a day.

COLIC.

This disease is seldom seen in cattle and when it occurs the animal is not very violently attacked. Compared with the same disease in the horse, tho symptoms are very mild. The animal will appear a little uneasy, stamp with its hind feet, twist its tail around from side to side, and possibly lie down and remain quiet; sometimes it will turn its head around to its side. The breathing and pulse will remain about normal.

TREATMENT:—Administer a physic; the following will answer very well—

Epsom Salts, sixteen ounces.
Powdered Ginger, one ounce.
Gentian, one-half ounce.
Warm Beer, one quart.
Warm Water, one quart. Mix.

Give at one dose. Bathe the lower part of the abdomen with Scotch Oil and allow the animal to rest. If it still appears uneasy give the following—

Tincture Opium, two ounces.
Tincture Ginger, one ounce.
Tincture Capsicum, one-half ounce.
Whiskey, one-half pint. Mix.

Give at one dose, and, if the pains still continue, repeat in two hours. Afterwards give Scotch Compound to tone up the bowels.

AFFECTIONS OF THE RETICULUM, OR SECOND STOMACH.

The reticulum, or second stomach, of the ox is sometimes the seat of trouble. It is this stomach which presents a honeycombed appearance. The usual trouble here is the accumulation of foreign bodies—such as pins, nails, shoesoles, pieces of tin, wire, etc.—which cows are liable to pick up. Many of these articles find a resting place in the rumen, or first stomach, but some pass on into the second stomach. Needles or nails sometimes pierce the stomach and pass out to the ribs or on through the flesh and form an abscess, finally sloughing their way out of the animal's body. Others may pass forward through the diaphragm and pierce the heart, causing instant death. Others may pierce the walls of the stomach and excite an inflammation there; and they may be encased in tumors which have formed around them, there to remain for months or even years; or abscesses may form and break, assisting to destroy the life of the animal. It may not show any signs of illness and yet have within the stomach quite an accumulation of bits of iron, etc. But, if tumors and abscesses form, the animal will begin to loose flesh; an intermittant diarrhœa will be noticed, with rough staring coat and yellow skin, full of

dandruff, impaired appetite, sunken eyes, and aversion to movement. The treatment is unsatisfactory, as the offending object is difficult to locate. All that can be done is to feed on good, soft, nutritious diet, and, if able to locate the irritating substance, operate and remove it.

CONJUNCTIVITIS, OR INFLAMMATION OF THE EYES.

Inflammation of the eyes arises from various causes, such as blows from sticks or stones, being struck with a whip, dirt or chaff getting into the eye, foul stables, exposure to cold, etc.

SYMPTOMS:—Swelling of the eye-lids, with water dropping from the inner corners; eye-lids closed most of the time; intol erance of light; impaired appetite; feverishness; conjunctiva swollen and red, with a whitish film covering the anterior portion of the eye-ball; if from a bruise, red streaks of blood will be seen radiating from the seat of injury.

TREATMENT:—If a foreign body is in the eye, remove it; bathe the eye well with hot water and apply Scotch Eye Lotion. If from other causes give a physic—

Epsom Salts, sixteen ounces.
Ginger, one-half ounce.
Fœnugreec, one-half ounce. Mix.

Give at one dose. Then bathe the eyes three or four times a day with hot water; feed on soft feed and apply twice daily, one of the following lotions.—

Powdered Opium, one drachm.
Hot Soft Water, six ounces. Mix.

Or—

Sulphate of Zinc, four grains.
Water, two ounces. Mix.

Or—

Sulphate of Copper, four grains.
Water, two ounces. Mix.

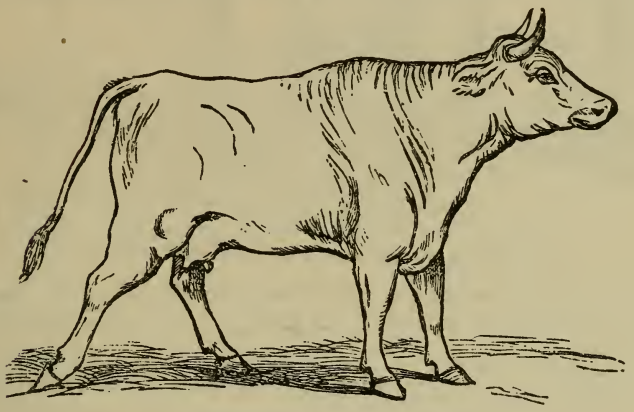
Or—

Sulph. Morphia, one grain.
Cocoaine, one grain.
Water, one ounce. Mix.

Scotch Eye Lotion used according to directions is better than any of these. Keep the patient in a clean, dark, airy stable; if at pasture, and only one eye is affected, bandage the affected eye.

DISLOCATION OF THE PATELLA, OR STIFLE JOINT.

Among cattle this is quite a common affection, usually resulting from slipping on the ice, or instables where the drop



DISLOCATION OF THE PATELLA.

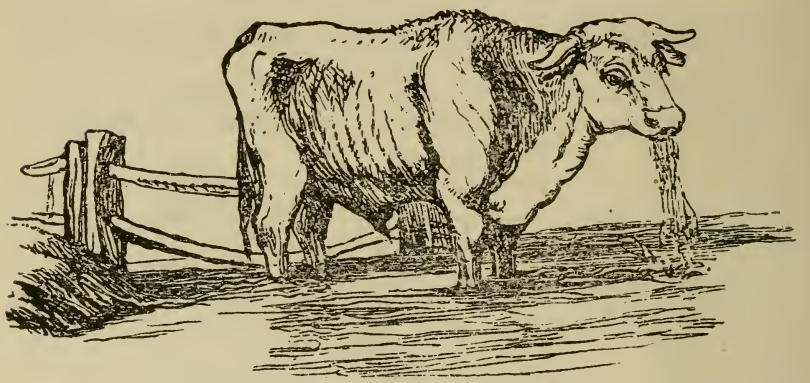
or receptacle for manure is very deep and the floors not well cleaned.

SYMPTOMS:—When once seen it will be readily recognized again. The animal can walk only on three legs; the stifled one will be dragged along behind and will be stiff and rigid. Where the patella should be, when in position, a hollow spot will be observed. There will be inability to flex the affected limb more or less swelling around the joint.

TREATMENT:—Fasten a strap around the fetlock of the disabled leg, pass it forward, when the patella will often drop into place; if not, press forward on the bone (which is always on the outside) and it will readily drop into place. Then apply a blister or Scotch Oil three times a day, until the ligaments are strengthened.

ENTERITIS, OR INFLAMMATION OF THE BOWELS.

Among cattle this disease is not very frequent, but when it does occur it is usually very fatal. The causes are obstruction



ENTERITIS, OR INFLAMMATION OF THE BOWELS.

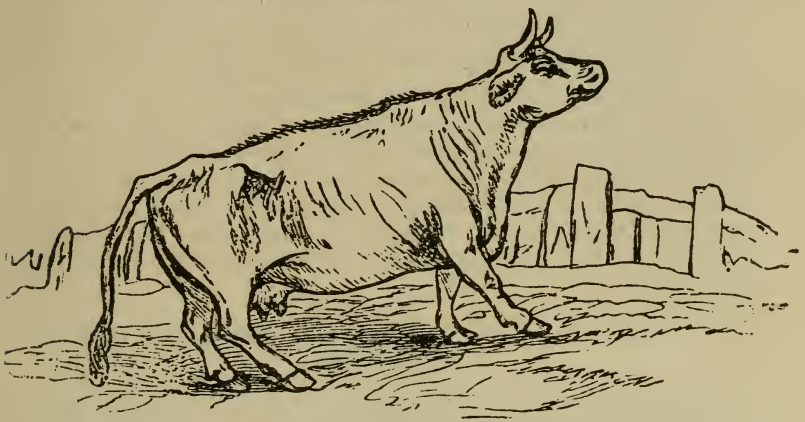
of the bowels; feeding on musty hay; drinking ice-cold water; administration of powerful, irritating medicines; change of feed, etc.

SYMPTOMS:—The animal will be seized with colicky pains; will strike at the abdomen with the hind feet; suspension of appetite and rumination; pulse, at first full and hard, gradually growing quick, small and wiry; the animal lies down and rises up frequently; pain is constant; moaning; nose hot and dry; mucous membrane very red; anxious expression of countenance.

TREATMENT:—Place the animal in a comfortable stall well bedded. If the disease is caused by obstruction of the bowels give a mild laxative—as a pint and a half of sweet oil, or a pound of sulphate of soda in half a gallon of water. Follow up with drachm doses of powdered opium, to relieve the pain, or twenty-drop doses of fluid extract aconite, every thirty minutes until relief is obtained. Apply to the abdomen blankets wrung out of hot water and rub Scotch Oil on the abdomen and legs. Blanket well and feed on soft bran mashes for a few days, to relax the bowels. Avoid giving brisk purgatives as evil results are liable to follow their use.

INFLAMMATION OF THE LIVER, OR HEPATITIS.

Inflammation of the liver is most frequently the result of high feeding in warm stables without sufficient exercise to keep



FIT FROM INFLAMMATION OF THE LIVER.

the circulation of the blood active. The bowels become constipated and the liver suffers from an extra amount of blood sent to it, causing congestion and resulting in inflammation.

SYMPTOMS:—When the liver is first attacked with congestion the animal exhibits no very distressing symptoms. But when inflammation sets in the pulse is slow and intermittent; respiration slow; the mucous membranes are pale or tinged with yellow; bowels constipated; the dung harsh and black; urine high colored; coat staring, dry and hard to the touch; horns, ears and legs cold. On applying pressure to the right side, behind the last rib, the animal will evince pain and try to get away from you, and sometimes moan; you will also feel a hard tumor like substance.

TREATMENT:—At the outset give a brisk cathartic—

Epsom Salts, twenty ounces.
Aloes, one ounce.
Calomel, two drachms.
Ginger, one ounce. Mix.

Give in a gallon of warm water at one dose. After the physic has operated, give, morning and evening for a week or ten days, in a pint of gruel, the following—

Iodide of Potassium, one drachm.

Calomel, twenty grains.

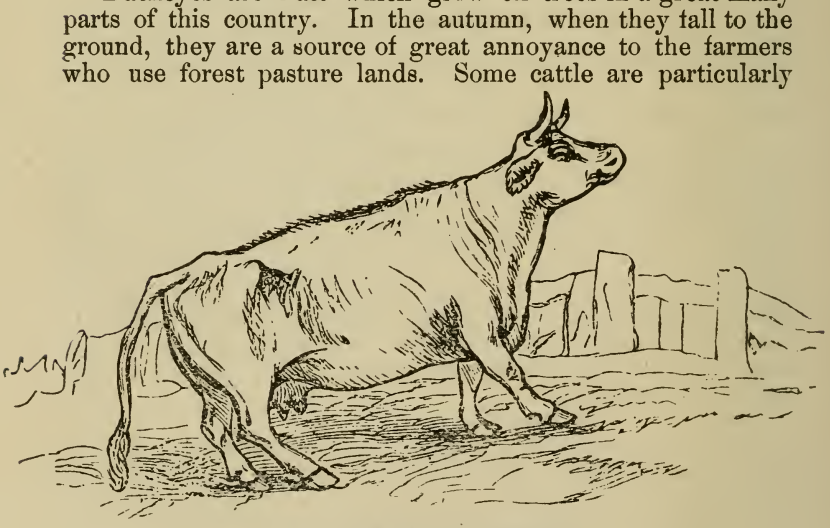
Extract Taraxacum, two drachms.

Nitrate of Potassum, two drachms. Mix.

If the bowels become costive give a physic. When convalescence is established great care in feeding should be observed. Give highly nutritious food in a limited amounts, and that which is easlly digested—as scalded bran mash, linseed meal, boiled barley, turnips and choice clean hay. Sometimes much benefit is derived from blisters applied on the right side.

FITS FROM EATING BUCKEYES, (ŒSCUBIS HIPPOCASTANUM).

Buckeyes are nuts which grow on trees in a great many parts of this country. In the autumn, when they fall to the ground, they are a source of great annoyance to the farmers who use forest pasture lands. Some cattle are particularly



FITS FROM EATING BUCKEYES.

fond of these nuts and eat them readily, seldom, however, eating them a second time if they eat many the first. When

once observed the symptoms will never be forgotten. For a while the animal will appear dull and stupid; respirations natural; pulse, at first full and quick, gradually growing small, weak and rapid. When the animal attempts to walk it staggers around like a drunken man, striking all around with its forelegs and falling in almost any position as if in a fit. After lying a short time it gets up very awkwardly and may stand perfectly quiet; but, if forced to walk, it will stagger around until it either regains its balance or falls to the ground. The animal may lie perfectly quiet, stretched out on the ground for two or three days, and if relief is not obtained, death ends the scene. By pressure on the stomach you will generally feel the offending agents. There will be involuntary twitchings of the muscles and grinding of the teeth.

Treatment:—When first noticed give a brisk physic to expel the buckeyes—

Epsom Salts, twenty-four grains.

Powdered Aloes, one ounce.

Ginger, one ounce. Mix.

Put in a gallon of water and give at one dose. Give per rectum frequent injections of warm water. If within twenty-four hours the animal is not convalescent, rumenotomy should be performed (see Impaction of the Rumen); after which give one of the following powders three times a day—

Bromide of Potassium, two ounces.

Nitrate of Potassium, one ounce.

Ginger, one ounce.

Gentian, two ounces.

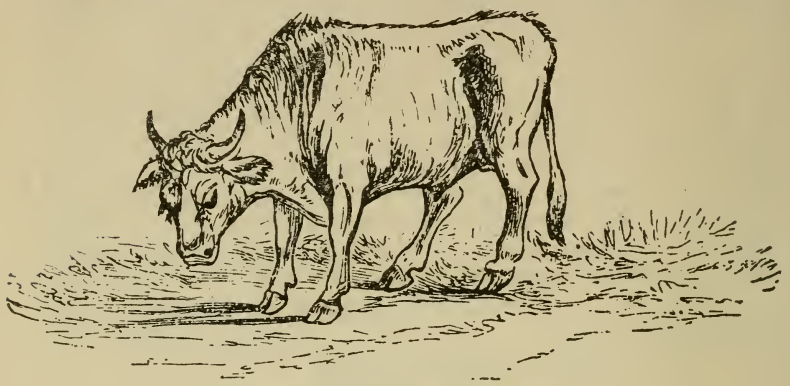
Bi-Carbonate of Soda, two ounces. Mix.

Make twelve powder of this; or give Scotch Compound. Feed on soft feed—as bran mash, or linseed gruel. The balance of the herd should be moved to other pasture, or the nuts should be gathered and destroyed.

IMPACTION OF THE OMASEEM, OR FARDEL-BOUND.

Impaction of the manifolds, or third stomach of the ox, is sometimes met with; more especially when the cattle are

poorly kept during the winter season and are feed on innutritious food, containing a great amount of woody fiber. Even soft, nutritious food, when thoroughly masticated, appears



IMPACTION OF THE OMASEEM.

very dry while passing through the manifolds of the third stomach. Consequently when the food is innutritious, dry, possessing a vast amount of woody fiber, it is liable to become impacted while passing through this stomach.

SYMPTOMS:—At first the animal may be uneasy, but this is only of short duration, as it soon grows dull and stupid, resting its head upon the manger or on other objects. The head is carried low down; appetite and rumination are suspended; if in a cow the flow of milk decreases; the tongue protrudes from the mouth; eyes are staring and blood-shot; colicky pains arise; the tail is switched from side to side. The first stomach sometimes fills up with gas; then the breathing is accelerated. The eyes are affected and will bear the touch of the finger without closing the lid. Sometimes the brain is affected, when the animal will rush around as though it were mad, fall down and struggle as if in a fit, when death puts an end to its misery. Sometimes the dung passed while the animal is straining will be thin and frequently blood and mucous are passed. The urine is high colored; pulse at first full and natural but gradually growing weaker. The disease may last but a day, or it may continue for a week.

TREATMENT:—Give a good, brisk cathartic, as the following—

Epsom Salts, two pounds.
Calomel, two drachms.
Gentian, one ounce. Mix.

Give in half a gallon of warm beer. Follow this up with hourly injections of warm water and castile soap, as long as deemed advisable. Allow all the water an animal will drink, but allow no food until the bowels are moved by the physic. If the first stomach bloats up draw off the gas with a probang or trocar and canula. Rub the legs with some stimulant or with Scotch Oil. Blanket well to keep the body warm and give the following stimulant every two hours, in a quart of warm beer—

Aromatic Spirits of Ammonia, two ounces.
Tincture Nux Vomica, two drachms.
Tincture Ginger, one ounce. Mix.

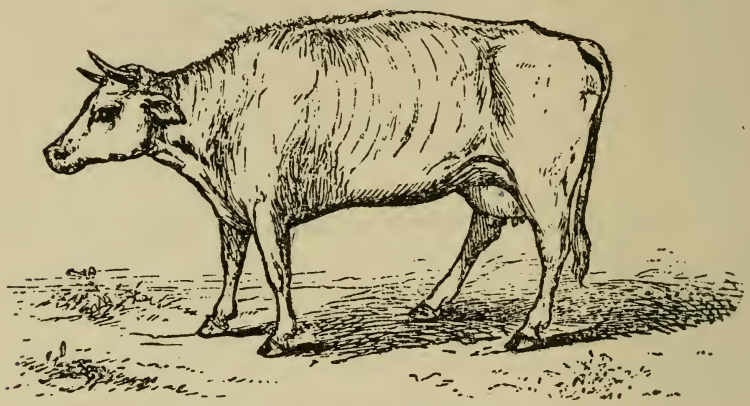
Never bleed in this disease as it is dangerous, even while the animal has a full pulse. Be careful after giving the first dose not to give any more physic for forty-eight hours. Then, if the bowels do not move, give half of the first dose.

HIDE-BOUND.

A great many diseases of the alimentary canal in cattle cause great depletion in flesh, whereby the skin assumes an unhealthy appearance; the cellular tissue loses its elasticity, and, to all appearance, the skin is fastened to the bone. Then the animal is said to be hide-bound, when, in reality, the disease exists in the alimentary canal, and the tightened appearance of the skin is only a symptom of some other affection, such as indigestion, diarrhœa, disease of the liver, or failure of the secretory glands in the intestines to perform their work. Some animals present a pinched-up, poor, unthrifty apperance, without any tendency to take on flesh. Such animals may have some derangement of the system over which medicines would have no control and may be classed as worthless, as you cannot make beef out of them, and they are useless in the dairy. The treatment should be to find out the real cause of the trouble, which is generally in the alimentary canal, and if this is properly treated the skin will soon assume a healthy appearance. But I know of no disease among the lower animals which could properly be called hide-bound.

IMPACTION OF THE RUMEN.

This affection is quite common among cattle. It is caused by cattle eating too large quantities of food which they may particularly like and of which previously they may have been deprived. Cattle are particularly fond of clover, and if de-



IMPACTION OF THE RUMEN.

prived of it for some time, and then obtaining free access to it they are liable to eat so much that the stomach becomes so gorged that the muscular coats become partially paralyzed. Or cattle that have gained access to a large quantity of grain will devour a large amount of it, overloading the stomach and causing impaction with more or less tympanitis.

SYMPTOMS:—Usually, at first, the symptoms are not severe. The animal will appear dull, and, possibly, somewhat distressed; bowels constipated; appetite and rumination suspended; nose dry and mouth hot; pulse full at first but growing gradually faster and weaker; horns, ears and legs grow cold; labored respiration; sometimes the animal will groan or grunt, and the breath be fœtid or sour; paleness of the visible mucous membranes; if lying down the animal usually lies on the right side. By pressing the fingers on the contents of the stomach will be felt like a hard mass within it and will pit, upon pressure, leaving the indentions of the fingers there for some time. On percussion the resonant

sound is absent, unless tympanitis supervenes; but if no gas is present, the doughy feel of the stomach remains.

Treatment:—If there is tympanitis relieve by giving the following—

Liquor Ammonia, one ounce.

Tincture Ginger, one-half ounce.

Water, one quart. Mix.

Or, pass the hollow probang, or tap with the trocar and canula; after which give at one dose in a gallon of warm water the following—

Epsom Salts, twenty-four hours.

Ginger, one ounce. Mix.

Give repeated injections of castile soap and warm water, and every two hours give the following—

Aromatic Spirits of Ammonia, two ounces.

Ginger, one ounce.

Warm Beer, one quart. Mix.

If the bowels fail to respond in from twenty-four to thirty hours rumenotomy should be performed, as later the animal may become exhausted and unable to stand the operation. The operation should be performed as follows: First prepare yourself with the necessary instruments which consist of a scalpel or an ordinary sharp jack-knife, two pairs of hooks, needles, white silk thread of the heaviest kind, some clean white linen cloths, a sponge and a pail full of clean warm water. Next fasten the animal by ropes with the right side against the stall or fence; be sure to fasten it securely, so it cannot get away; have three or four assistants to hold it up and steady it. Commence the operation by making an incision through the skin midway between the last rib and the point of the hip, and about five inches from the bones which protrude from the back (vertebræ). The incision should be downward and about eight inches in length. Then divide the muscles successively and cut through the peritoneum. Lastly the walls of the stomach should be divided about the centre; first make a small opening into the stomach; then secure the edges of the stomach with hooks and gradually pull it outward, while the incision is being lengthened both upward and downward,

but not to the extent of the external opening. The edges of the wound in the stomach should be drawn outward to cover the external wound so as not to allow any of the food to fall into the abdominal cavity, as that would surely cause the death of the patient. The hand is then introduced and about three-fourths of the contents of the stomach removed, leaving about one-fourth behind, be careful not to leave any hard, dry lumps. You may then pour into the stomach through the opening the following—

Epsom Salts, ten ounces.

Warm Beer, one quart.

Warm Water, one quart. Mix.

Next wash off the wound and sew up the stomach with the uninterrupted suture, bringing the edges neatly together. Then stitch up the muscles in layers, taking deep stitches with the uninterrupted sutures. Lastly sew up the skin in the same manner. Immediately after apply the following ointment—

Vaseline, four ounces.

Iodoform. six drachms. Mix.

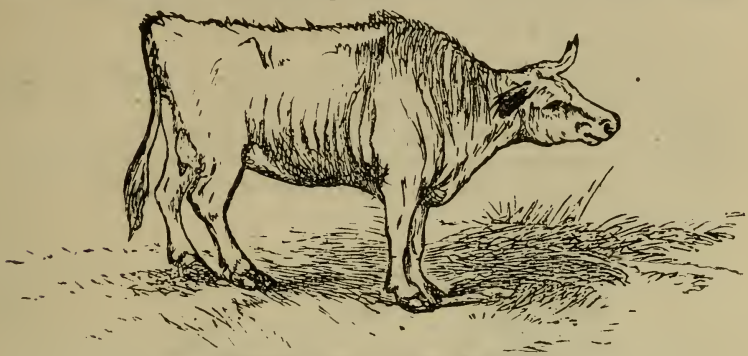
Continue its use until the wound is healed, or use some other healing lotion. The food should be light and soft, of the most nutritious kind, and given in small quantities. If the wound heals except a small opening scarify its edges and stitch them together again.

PNEUMONIA, OR INFLAMMATION OF THE LUNGS.

Inflammation of the lungs may have various causes, such as exposure to cold and damp; being kept in filthy, ill ventilated stables; a morbid condition of the blood—the lungs, in their endeavor to throw off its impurities, becoming altered in tissue with inflammation as the result; injuries, etc.

SYMPTOMS:--The disease is generally ushered in with a shivering chill, which is not always noticed, after which the animals appears dull and stiff. The skin is dry and harsh; coat staring; nose dry; mouth hot; pulse, at first full and strong--from fifty to sixty beats per minute—later becoming small, weak and rapid; mucous membranes are red; slight cough; anxious countenance; breathing short, quick and

chiefly abdominal, the chest and ribs being held, as much as possible, in a fixed position; bowels constipated; urine scant and high colored; patient lies down most of the time; dullness on percussion; on applying the ear to the sides of the chest



INFLAMMATION OF THE LUNGS.

no respiratory murmur will be heard over the affected part, but the unaffected portion will be heard with increased force; as the disease advances the legs and ears become cold, the breath becomes fœtid and shorter, and an unfavorable termination seems imminent.

TREATMENT:—When first seen while yet the pulse is full bleed to the amount of two quarts; but, should the pulse be weak, do not bleed, and give every three or four hours, two ounces of the following, in a little water as a drench--

Liq. Ammonia Acet., twelve ounces.

Spirits Aeth. Nit., four ounces.

Fluid Extract Aconite, two drachms. Mix.

Also give the following powders every four or five hours—

Quinine Sulph., three drachms.

Dover's Powder, one ounce. Mix.

Make into twelve powders. If the bowels are constipated give—

Epsom Salts, twelve ounces.

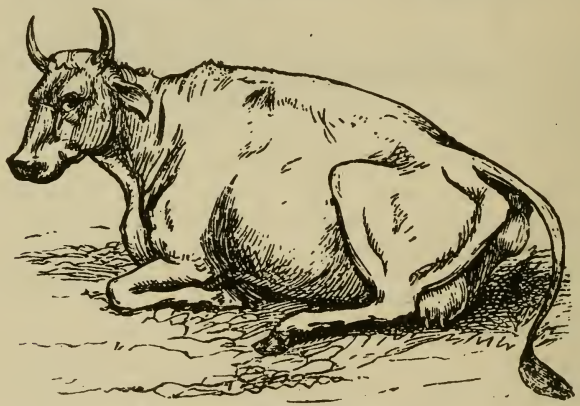
Ginger, one-half ounce. Mix.

Give in two quarts of warm water. Apply Scotch Oil freely to the sides of the chest; feed on soft feed; blanket

well; allow the patient to breathe cold, fresh air and give plenty of fresh, cold water; if the limbs become cold rub them thoroughly with dilute alcohol and bandage.

INVERSION OF THE BLADDER.

Among cattle this is not a very common affliction, except during difficult labor. However it may occur from other causes, as administration of powerful diuretics; use of too much cantharides, either internally or externally; any irritation of the bladder causing continuous straining. By violent



INVERSION OF THE BLADDER.

attempts to pass water, followed by continuous straining, the vagina is ruptured and the bladder is everted, when it appears as a red fluctuating tumor gradually filling with water, as it is unable to discharge its contents owing to the twisted condition of the neck of the bladder.

TREATMENT :—Oil the hands with sweet oil and carefully replace the bladder; then draw off the urine and, while the catheter remains in position, inject a decoction of opium and warm water. Then, if possible stitch up the rupture in the vagina and allay the irritation and overcome the straining by giving dram doses of powdered Opium every hour until relieved; or you may give twelve-grain doses of Sulphate of Morphia until relieved. Afterwards give a physic :

Magnesia Sulph., twelve ounces.
Sulphate of Soda, eight ounces.
Ginger, six drachms. Mix.

Give at one dose in a gallon of water. To assist in preventing the straining tie a rope or strap tightly around the body immediately over the loins.

INVERSION OF THE VAGINA.

With cows this is quite a common occurrence and is the result of difficult parturition, the animal receiving some injury therein; also is caused by tumors in the vagina or womb; straining after calving; retention of the placenta or afterbirth; swinging animals so the whole weight is upon the abdomen, etc.

TREATMENT:—First ascertain the cause and, if possible, remove it; then oil the hands with sweet oil and carefully press the vagina into position; then wash it thoroughly with a decoction of opium. Place the animal in a stall, with the hind parts elevated fifteen or twenty inches above the front. Then apply a truss made of rope, fasten it around the neck and bring the ropes straight down along the back; pass one down on each side of the tail to the udder, and on each side between the udder and hind leg; fetch it up past the flank and tie it just over the loins to the rope coming down the back. Then make a few circles around the body and tie the ends of the rope securely. Thus you have the animal harnessed securely so that it cannot strain any, as the back will be kept in a straight line. Give twelve-grain doses of Morphia every hour until the attempts at straining cease; also inject every three or four hours into the vagina a decoction of Opium. If the bowels become constipated give a mild physic and feed on soft nutritious food, with a teaspoonful of Scotch Compound twice a day.

LEUCORRHŒA, OR WHITES.

Leucorrhœa consists of a chronic discharge of muco-purulent matter from the mucous membranes of the vagina, and, not unfrequently, from those of the womb. Generally irritation of the organ followed by relaxation is the cause; but relaxation alone will produce it. Want of nutrition attended with

debilitating influences is a frequent cause. Sometimes, to all appearance, an animal will be healthy and yet affected with leucorrhœa. On opening the lips of the vulva a sticky whitish or yellowish matter will be seen; quite frequently it runs out of the vagina and accumulates on the tail and surrounding parts. As the disease progresses the discharge emits an offensive odor; pulse grows feeble; mucous membranes pale; appetite and rumination suspended; mouth clammy; gradual wasting of the whole system. Cattle affected with leucorrhœa are quite frequently seeking a male companion, but seldom get with calf and if they do generally abort.

TREATMENT:—Feed on soft nutritious diet with tonics and stimulants. Give twice daily four ounces of the following, diluted with water:

Aromatic Spirits of Ammonia, four ounces.

Spirits Æth. Nit., five ounces.

Tincture Ginger, five ounces.

Tincture Muriate of Iron, two ounces.

Strychnia, two grains. Mix.

Use as an injection per vaginum twice daily one of the following powders, dissolved in a quart of warm water:

Permanganate of Potassium, one ounce.

Chloride of Zinc, four drachms. Mix.

Make into eight powders; previously wash out the vagina and womb to remove all matter.

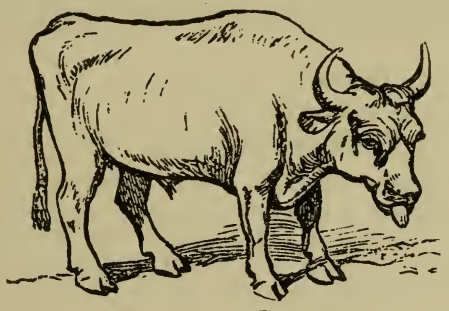
LICE.

Cattle are affected by several kinds of lice but those chiefly met with are the small red lice and the large gray ones which have black spots on their backs and sides. They are most frequently seen on poor debilitated cattle that are poorly fed and cared for. Their propagation is very rapid; when an animal becomes infested they are soon numbered by thousands and the whole herd is speedily possessed by them. They may be speedily exterminated by the use of some of the following remedies: Take one pound of staves-acre seeds, soft water two gallons; place over the fire and simmer down to one gallon. Sponge the animal all over and repeat every third

day until three applications have been made. Or, take leaf tobacco one pound, water two gallons; boil thoroughly and apply every other day for four or five times. Or, take blue ointment and rub it back of the horns and down the back every third day for three applications; this is the most dangerous and the animal must be kept tied so it cannot lick itself; also protect it from storms. If the staves-acre can be obtained it will be found to be the most effective.

PLEURISY.

The term pleurisy is used to denote an inflammation of the membrane covering the heart and lungs, which is also the lining membrane of the chest. Sometimes pleurisy occurs in pneumonia or inflammation of the lungs on account of the proximity of this membrane to the lung tissue. Sometimes it



PLEURISY.

occurs as a separate and independent disease. The causes are exposure to wet and cold; filthy stables; sudden change by being turned from warm stables into the cold; injuries to the chest, etc.

SYMPTOMS:—The animal appears dull and stiff, without desire to walk around. Fever is present from the beginning of the attack. The breathing is chiefly abdominal, the chest being held, as far as possible, in a fixed position. The patient seldom coughs as the act is very painful. The pulse is wiry, ranging about sixty beats per minute. The head is carried low with drooping ears. Appetite and rumination are suspended; nose dry; eyes about half closed. On applying

the ear to the part affected a grating sound is heard, althongh the lungs give forth a healthy respiratory murmur; pressure between the ribs causes great pain sometimes causing the animal to groan or grunt. While breathing inspiration is short, becomes painful, while the expiration is more easily performed and therefore lengthened.

TREATMENT :—Put the animal in a good comfortable place and blanket well. Apply poultices of linseed meal to the chest; in its absence poultice freely with mustard. Give every two hours two ounces of the following mixture :

Liq. Ammonia Acet., twelve ounces.

Spirits Æth., four ounces.

Fluid Extract Aconite, two drams. Mix.

Regulate the bowels by giving a pint and a half of raw linseed oil and injections per rectum of warm water every two hours. Also give one of the following powders every six hours :

Nitrate of Potassium, two ounces.

Chlorate of Potassium, one ounce.

Iodide of Potassium, one ounce. Mix.

Make into twelve powders. If it terminates in resolution the disease will last but a few days; but if it terminates in hydrothorax, or water in the chest, it may last some considerable time and require a different treatment. If there is much effusion into the chest it should be drawn off with a trocar and canula, The place to pass the trocar and canula is between the eighth and ninth ribs; after they are inserted withdraw the trocar and allow the canula to remain until all the fluid runs out, Sometimes bands of lymph plug up the canula; these should be removed with a long needle. After the fluid has all drained out remove the canula. Then administer tonics and stimulants to support the system. Give every six hours one of the following powders :

Powdered Digitalis, six drachms.

Nit. Potass., one and one-half ounces.

Sulphate of Iron, two ounces.

Powdered Nux Vomica, one ounce. Mix.

Make eight powders. Give in a pint of warm beer. Also

give twice a day dram doses of Iodide of Potassium, with four ounces of brandy and a little water. Feed on soft nutritious diet.

SORE TEATS.

Around the teats some cows are more tender than others. The skin is tender and easily cracked, forming open and indolent sores which are hard to heal. These sores may occur at any season of the year and are most commonly seen on cows which have just calved. Cow-pox is liable to break out on the teats at any time and to cause considerable annoyance. It first forms a round blister which bursts and discharges a bluish liquid. It then scabs over with a thick crust which cracks open during milking, or comes loose around

TEAT SYPHON.

the edges; or comes off altogether, when it leaves a small depression in the structure of the teat. It gives considerable annoyance to the milkman, as the sores frequently bleed and his hands become covered with matter, and blood frequently gets into the milk. When the teats are in this condition calves should not be allowed to suck as it aggravates the sores and tends to make the cows professional kickers. The following ointment will be found to be very beneficial, especially during the season of flies :

Vaseline, two ounces.
Carbolic Acid, one drachm.
Iodoform, two drachms. Mix

Apply twice daily; or,

Vaseline, two ounces.
Salicylic Acid, one drachm.
Iodoform, one drachm. Mix.

Apply twice daily; or use Scotch Ointment according to directions. Great care should be exercised in milking such animals and if badly affected the teat syphon should be used.

MAMMITIS, OR INFAMMATION OF THE UDDER.

Inflammation of the udder arises from many causes, such as, bruises, wounds, bites of insects and reptiles; allowing the animal to go unmilked for a day or so; taking cold; rheumatism and other fevers; being over-heated; allowing a superabundance of milk to remain in the udder previous to calving. The last-named is the most frequent cause among cattle of all ages; but especially with young cows which are having their first calf.

SYMPTOMS :—Inflammation of the udder may exist in a mild form for a few days and then subside, without any alarming symptoms beyond a slight increase in heat around the affected parts. But with the severe form there will be considerable fever and dullness. The animal will have a capricious appetite and rumination be partially suspended; bowels slightly constipated; the udder becomes very hot swollen and tender; milk will be decreased and sometimes totally suspended; skin covering the udder is very red and glistening; if only one or two quarters of the bag are affected they will appear and feel like hard tumors and may continue swollen for some time. The operation of milking is performed with difficulty on account of the painful condition of the udder. The milk from the affected quarters will be thick and curd-like and frequently streaked with blood. If not relieved suppuration takes place within the udder, the hardened parts becoming soft and discharging matter during the operation of milking; or the affected quarter may point and break externally, in which case its usefulness is generally gone forever.

TREATMENT :—If properly attended to when first noticed mammitis will generally result satisfactorily. But if left unattended for some time the opposite state of affairs is certain. Put the animal in a good dry comfortable place, free from drafts; and administer in a gallon of warm water the following :

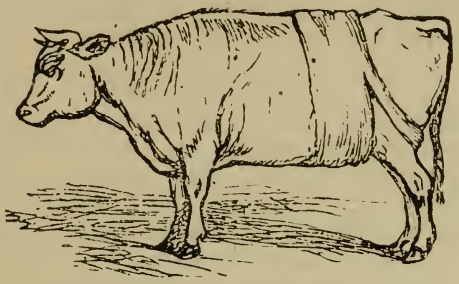
Magnesia Sulph., one pound.

Ginger, one ounce.

Nitrate of Potassium, two drachms. Mix.

Afterwards apply to the udder, for two hours at a time, fomentations of hot water; to each gallon of water used add

four ounces of powdered Sulphate of Iron. Immediately after bathing apply a Hop poultice as hot as can be borne; or a poultice of fried onions will do as well. Use a broad bandage and tie it up around the back to support the bag. If the



BANDAGE FOR SUPPORTING THE UDDER.

animal shows signs of high fever administer the following draught, every four or five hours:

Liq. Ammonia Acet., four ounces.

Fluid Ext. Aconite, fifteen drops.

Spirits Æth. Nit., one ounce.

Water, one quart. Mix.

Milk the patient frequently but if it causes much pain, insert the teat syphon. Occasionally rubbing the bag with Fluid Ext. Belladonna is frequently beneficial. If the udder still remains hard the following lotion will be found beneficial:

Rectified Spirits, sixounces.

Witch Hazel, eight ounces.

Tincture Iodine, two ounces. Mix.

Apply three times a day; or, better still, use Scotch Oil from the commencement of the attack until the end. If mortification sets in cut out that quarter of the bag and dress with the following:

Vaseline, four ounces.

Iodoform, five drachms. Mix.

Apply thrice daily; or,

Chloride of Zinc, two drachms.

Water, one quart. Mix.

Apply thrice daily; or,

Listorine, six ounces.
Carbolic Acid, two drachms.
Water, one piut. Mix.

Apply frequently; or use Scotch Ointment. Feed on soft nutritious diet and keep as clean as possible.

SPLENIC APOPLEXY.

This disease seldom occurs except among cattle which are fed for beef and fattened rapidly. It consists of a poisonous ferment created within the blood itself during an unnaturally plethoric condition of the system; and it is demonstrated by the extravasation of blood throughout the intestinal canal, brain, serous membranes, pericardium, etc., as found in post mortem examination. That it is poisonous is shown by the fact that dogs and pigs have died within a few hours after eating the flesh, and that men have died from cutting themselves while skinning animals dead from this disease.

SYMPTOMS: — Great excitement; eyes staring; mucous membranes red; mouth hot and dry; urine and manure mixed with blood; colicky pains; breathing accelerated and short; pulse, from full and hard becomes quick and feeble and almost imperceptible. These symptoms are not always observed, as the disease is of such short duration; the animal may be left to all appearance perfectly well in the eveniug and found dead in the morning.

TREATMENT: —When seen in the first stages give immediately the following:

Epsom Salts, sixteen ounces.
Chloride of Sodium, twelve ounces.
Calomel, two drachms.
Ginger, one ounce.
Warm Beer, two quarts; (or Warm Water, one gallon.)

Mix. Constantly apply cold water or ice to the head and give every two hours the following:

Carbonate of Ammonia, two drachms.
Ginger, one drachm.
Beer, one quart. Mix.

Bleeding is sometimes beneficial.

STRANGULATION OF THE INTESTINES, OR "GUT-TIE."

This disease is seen only in steers and work oxen. When the animal is castrated the spermatic cord recedes and becomes adherent to the abdominal ring. The cord is united to the pelvic bones by a fold of peritoneum, which by pressure is sometimes ruptured and allows the gut to pass in and out and thus become strangulated.

Symptoms:—The animal appears dull; colicky pains are present; appetite and rumination suspended; frequent straining with great effort, but nothing passed save a little mucus and possibly blood; pains become more violent and the animal kicks at its belly with the hind feet, lies down and quickly rises again; pulse small and quick; the animal points its nose to the affected side; moaning and grinding of the teeth frequently occur; pressure upon the right side causes great pain; the back is curved downward; administration of purgatives produces alarming symptoms.

Treatment:—The only sure treatment is by operating. Place the animal with its left side against a stall and fasten there securely. Make an incision in the right side large enough to admit the hand. Pass the hand down to examine the abdominal rings and trace up the cord. When you come to the strangulation sever the adhesions of the cord and the intestine is then liberated. Draw out the cord and excise two or three inches, then return it, and treat as an ordinary wound by applying Scotch Ointment.

WARBLES, OR GRUBS UNDER THE SKIN.

This is really no disease but simply the manner in which an insect, called the Œstrus Bovis, develops itself. During the warm months of summer this insect flies about and attacks cattle by piercing the skin and depositing an egg in the orifice. In the course of time a swelling is observed, caused by the deposition of lymph and the development of the larvæ from the egg, which is in time discharged by the process of suppuration. It may fall upon the ground or in the stable. If the temperature is sufficiently warm to develop it, it puts forth wings and soon begins to deposit eggs for the continuance of its race in the manner already described. Sometimes

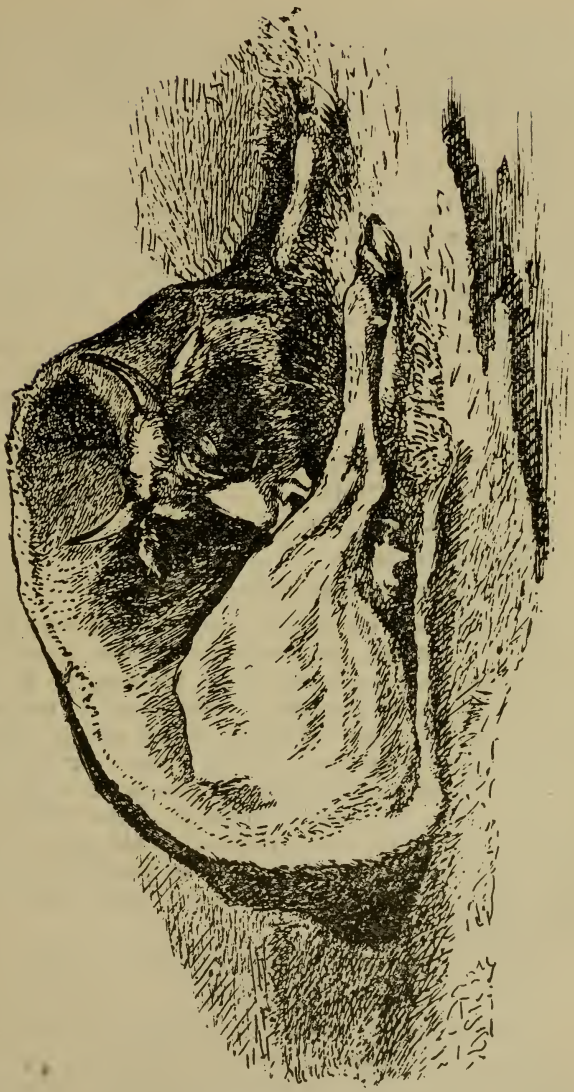
there are a number of these tumors that acquire the size of a butternut, and suppurate and discharge to such a degree that they call for treatment. This consists of pressing them out and using some mild astringent lotion; the following will suffice :

Zinc Sulphate, two drachms.
Acetate of Lead, two drachms.
Water, ten ounces. Mix.
Apply twice daily.

PARTURIENT APOPLEXY.

This disease is seen in all breeds of cattle and generally attacks cows which give large quantities of rich milk. It is seldom seen during the first, second or third calving period, but usually from that time on, and almost always in cows that are highly fed and in good flesh. It usually occurs within three days after calving, and is very fatal—fully one-half of those attacked die. If recovery does result great care should be taken at the next time of calving as a recurrence of the attack at that time is frequent and generally proves fatal.

SYMPTOMS :—Usually between the first and third day after calving the cow will stand around dull and stupid; appetite, rumination and milk will be suspended—or only a slight flow of milk present; the cow walks as if weak across the back; staggers around shaking her head; as the disease advances she falls to the ground unable to rise again. She may rest in a recumbent position with her head carried around to her side, or she may lie stretched out upon her side with her head lying upon the ground. Sometimes the head is shaken viciously from side to side, endangering those about her and liable to break off her horns. Occasionally, but not often, a few kicks with the feet are given. The eyes become glassy and staring, soon growing insensible to the touch, with total blindness. Sometimes the eye-lids will quiver and jerk for some time. The pulse, at first full and soft, later on becomes slower and feebler, gradually becoming almost imperceptible. The breathing, at first almost normal, becomes gradually slower, prolonged and difficult; and frequently a rattling sound is heard within the wind-pipe. At the commencement of the



PARTURIENT APOPLEXY.

attack the temperature will range from 103° to 104°F., and as the disease progresses will gradually sink to 3° or 4° below normal. At first the bowels may appear loose, but soon become constipated, and the urine is usually retained within the bladder.

TREATMENT:—I wish here to impress upon the reader's mind that to be successful in the treatment of parturient apoplexy demands persistent attendance until death has actually occurred. I have seen cases, where the owner considered treatment useless and momentarily looked for death, make complete recovery. If the patient is seen when the pulse is still full and strong bleed to the amount of six quarts; but if the pulse is weak and the animal down, with the eyes insensible to light, do not bleed. As soon as possible give the following physic:

Epsom Salts, twenty ounces.
Calomel, one drachm.
Croton Oil, twenty drops.
Ginger, one ounce.
Warm Beer, one-half gallon. Mix.

If the animal has become unconscious give very slowly as it is liable to run down the wind-pipe. Then draw away the urine by means of a catheter; or by slipping the finger well-oiled into the neck of the bladder the urine will frequently be passed. Give injections of warm water every hour. Constantly apply rugs wrung out of hot water over the loins and apply ice-cold water or ice bags to the head, as the brain is badly congested. Frequently draw away the milk and keep the body and limbs warm by friction and blankets. Keep the animal in a postition as nearly erect as possible and give the following every two hours until recovery begins when the time should be lengthened:

Aromatic Spirits of Ammonia, eight ounces.
Tincture Ginger, four ounces.
Tincture Nux Vomica, two ounces.
Tincture Gentian, six ounces. Mix.

Give five ounces in a quart of warm beer. Prevention is the best and safest treatment for parturient apoplexy. When

an animal is known to be a heavy milker and is fleshy or plethoric in condition, she should be fed previous to calving on a laxative diet and but sparingly. The milk should be drawn away for ten days previous to calving; immediately after calving give the following drench :

Sulphate of Magnesia, twelve ounces.

Chloride of Sodium, two ounces.

Ginger, one-half ounce.

Fœnugrec, one-half ounce.

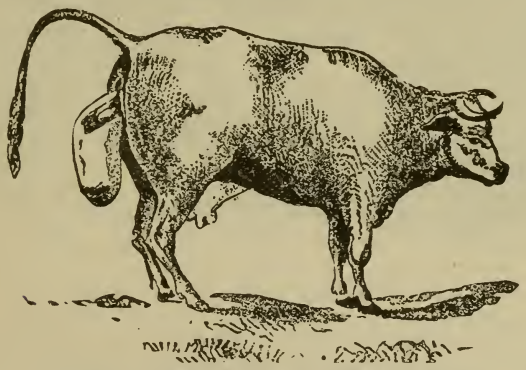
Water, one-half gallon. Mix.

If these directions are followed you will not be troubled with parturient apoplexy.

Parturition and Pregnancy.

PARTURITION--ITS SYMPTOMS, ETC.

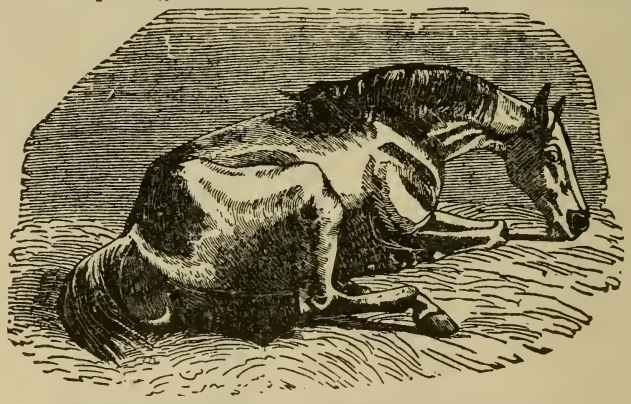
During parturition, from the earliest symptoms developed by the attempted expulsion of the fœtus until the fœtus and membranes are delivered, is called Labor. Symptoms of approaching labor and the termination of the period of gestation are sometimes observed for several days before the event transpires. One of the most important symptoms is enlarge-



NORMAL PARTURITION, OR NORMAL LABOR.

ment of the mammary glands –sometimes to such an extent that swellings, from the size of a saucer to that of a large plate, appear in front of the bag, also behind the bag up between the hind legs to the lower part of the vulva. Later on, if pressure is applied to the teat, it yields a watery secretion which sometimes escapes unaided and accumulates around the lower part of the teat, forming a gum-like substance or wax. The vulva increases in size and its lining membrane becomes reddened; sometimes a whitish, glairy secretion is formed and discharged as a long, stringy, sticky substance hanging from

the vulva and sticking to the tail and legs. The croup, on either side of the tail, looks hollow and feels soft and pliable from relaxation of the broad ligaments. The back is somewhat sprung downward, the abdomen distended and hanging low down. The animal walks about carefully and is somewhat inclined to leave the balance of the herd. In mares swelling of the hind legs is frequently seen. As the time for the expulsion of the fœtus draws nearer the animal has pains of a colicky nature; gets up and lies down frequently, and, if permitted, usually will seek a place of seclusion. As the uneasiness and pain increase the os uteri, or mouth of the womb, continues to dilate until the womb and vagina form one large continuous passage. The membranes are now observed ex-



NORMAL PARTURITION, OR NORMAL PRESENTATION.

ternally in the form of a water bag which on pressure is usually ruptured. The pains become more severe and frequent. The animal takes a full breath (as if preparatory to making a deep sigh), filling the lungs, and, holding it there for a time, brings the diaphragm and abdominal muscles into action to assist the uterus in the expulsion of the fœtus. If the animal is standing it brings its four feet close together, arches its back, elevates the tail, and takes a deep inspiration, the same as if lying. These labor pains are continued for a time when the fore feet and head are observed to be passing. The spine of the fœtus should be resting against the spine of the mother and the breast and abdomen against the lower part of the vulva. In

the mare, a few more labor pains and all is over; but in the cow labor is more prolonged and an extra effort is made when the chest is forced through the vagina to the outer world. As soon as the young animal is born the umbilical cord is torn apart, and, if bleeding much, should be tied; but this is seldom necessary. The remaining fluid now escapes from the womb and is sometimes tinged with blood from the sudden separation of the membranes. Sometimes the fœtus is delivered encased in the membranes, the uterine passage being sufficiently large to admit it and the membranes very thick and strong. When such is the case the fœtus sometimes ruptures them when struggling, or the mother tears them apart with her teeth; if not speedily ruptured the young creature soon expires for want of air. After the young animal has been delivered the next act is to get rid of the fœtal membranes—"the after-birth." In the mare the placenta will have such delicate attachment that slight contractions of the womb, together with the weight of the protruded part, cause speedy expulsion. But in the cow the placenta is not readily expelled; its attachment is by cotylœdons instead of villi, and the contractions of the womb do not so readily detach them. There may be from forty to a hundred attachments and from four hours to three or four days are required before the membrane is expelled, and then it may have to be removed artificially. If the mother is not seen during the act of parturition, or for some time after, the after-birth may never be seen, as cows, and sometimes mares, devour it as soon as expelled.

HYGIENE OF PREGNANT ANIMALS.

The measures for preservation of health in animals during pregnancy are those which should be observed generally with animals which are not pregnant, except a few extra precautions which should be taken in order that the mother may pass the periods of gestation and delivery in safety. When an animal has been served by the male and has conceived she should not be allowed to associate with the male either in the stable or pasture, as attempts on the part of the male at coition and casual excitement on the part of the female may do considerable harm, and even produce abortion. With such animals as are kept at work—as the mare—it is bad policy to work them very hard, especially after pregnancy is well ad-

vanced. Great care should be taken not to put them in a position where their sides are apt to receive blows, such as from heavy wagon tongues, etc. Neither should they be pampered and nursed in a stall without exercise. The work should be slow, and if at all slippery, the mare should be well shod. They should not be used for saddle purposes, but, if used, spurs should not be worn. Galloping, jumping, or in fact, anything producing excitement should be avoided. Should the patient be a mare used exclusively for breeding purposes, she should have a box stall and a yard in which to exercise. It is not at all necessary to cease working a mare for the two or three months previous to foaling; better to give slow, light work, so that they will have exercise up to the day of foaling. The food is a most important factor of success. Milch cows or working animals should be well fed as not only their appetite but their physical condition demands it. Some animals are prone to lay on flesh when pregnant; with such you should be very careful about feeding, as it may prove troublesome, especially if allowed to proceed to the extreme. It may retard the growth of the fœtus, produce abortion, cause difficult parturition, or give rise to some other serious trouble, which will be more likely to take place during the last few months of pregnancy than at first. The food should be clean, of good quality and easily digested. Damp, bulky, mouldy or fermentable food should be discarded, as evil results are nearly certain. Grazing is beneficial if the pasture is nutritious, if not supply the deficiency. The animals should be protected from foggy, damp or stormy weather. They should have all the clean pure water they desire, for when at liberty with free access to water they seldom drink much at a time. The water should not be too cold and ice water is to be strictly avoided. When animals are housed, strict cleanliness must be observed, and when near foaling time they should be placed in roomy box stalls. If one animal aborts and there are others pregnant on the same farm, the one aborting should be removed as the excitement amongst the others is liable to produce similar results. The stall in which abortion took place should be white-washed and strewn with slacked lime to destroy the smell. Harsh or cruel treatment on the part of attendant or groom should be suppressed. Young animals, about to bring forth their first offspring, should be handled very gently.

Their udders and teats should be handled frequently, thus preventing aversion to suckling their young. As much as possible surgical operations and the administration of medicines should be avoided. Above all things avoid giving drastic purgatives, as the irritation they produce is apt to cause contractions of the womb, resulting in abortion, and endangering the life of the mother. The stables in which pregnant animals are kept should have floors as nearly level as possible, for if the incline is at all great, the gravid uterus pressing backward may cause eversion of the vagina and abortion. The doors should be wide to prevent the animal's striking or crowding together its sides on entering or going out.

ŒDEMA IN PREGNANCY.

In some of the coarser breeds of animals and, occasionally in some of the finer, during pregnancy swellings appear around the udder, extending forward as far as the breast and backward and upward as high as the vulva. The hind legs will begin swelling just above the hoof and the swelling will extend upward to the hocks or even to the groin. These swellings are serous or watery in character, diminish rapidly during exercise and increase upon rest. The disease is not of much consequence, being caused by deficient circulation occasioned by the pressure of the fœtus upon the crural vessels. It is never seen in the cow as in her the circulation through the mammary veines is more complete than in the mare. In mares it sometimes appears three or four months previous to foaling; but when at pasture where they can get regular exercise it rarely occurs. It depends very much upon the conformation and temperament of the individual animal as well as on season and hygienic management. No fear need be entertained, as it disappears in a few days after foaling. Should it occasion any inconvenience, give exercise. Or, bandaging, the application of a mild stimulating liniment, or scarification may be resorted to. However this is very seldom necessary.

INVERSION OF THE WOMB.

Inversion of the womb can only happen when the os uteri, (or mouth of the womb) is dilated. Consequently it happens

only shortly after parturition or during the act of parturition. It is liable to occur amongst all breeds and all classes of animals. Mares seldom suffer from it, though it is quite common among cattle. I cannot say whether or not it be from peculiar conformation, but some cows are more subject to this affection than others. The uterine ligaments of the cow are so extensive and elastic that a few extra efforts or labor pains

INVERSION OF THE WOMB.

after the fœtus is expelled send the womb along with it, or shortly after. If inversion of the womb is thought probable, the animal should be watched and before the womb can be inverted a pessary should be introduced and the womb maintained in its position. A truss should be used to prevent straining and the following drench should be given at one dose :

Chloric Ether, one ounce.
Tincture Opium, two ounces.
Brandy, two ounces.
Water, one pint. Mix.

Previous to inserting the pessary remove all of the afterirth.

Should the womb be inverted and lying on the ground, or hanging from the animal as it stands, gather it on a clean linen sheet, remove all the membranes and wash it thoroughly with warm water, to which may be added a mild solution of

Listorine. Then commence to replace it. Oil your hand thoroughly, then close your fist and place it in the hollow spot or centre of the womb. Press inward slowly and carefully. If the animal strains be very careful, for fear of rupturing the womb. Have your assistants press on the sides of the womb towards your arm. In this way the womb will be returned. This should be done as quickly as possible after inversion has taken place. As soon as the womb is replaced, insert a pessary and keep it there from four to ten days. The pessary should be made of light wood, about twenty-two inches long and two inches thick, with the end inserted covered with a smooth oiled cloth and the outer end having a hole bored through it in which to pass a rope to hold the pessary in position. Fasten a truss made from rope around the patient; but do not fasten it too tight. Leave loose enough to allow the patient to get up and down. Feed on soft feed to prevent constipation and give Scotch Compound three times a day. It is a rather difficult job to return the womb and maintain it in position. But be persistent in your work and your efforts will be crowned with success, at least if the patient is a cow. In mares fully three-fourths of the cases prove fatal.

PREMATURE LABOR PAINS.

Premature labor pains frequently occur in the lower animals and are sometimes attended with considerable danger. Various things are supposed to cause them, some of which are exposure to cold rains; injuries; administration of certain drugs; feeding upon rye grasses, etc. I am inclined to believe that the quality and quantity of the food exerts upon the uterus a greater influence in producing premature labor pains than any thing else. Musty, mouldy, indigestible or fermentable food will cause derangement of the bowels and, through sympathy, involuntary contractions of the womb. Frozen food or ice-cold water acts similarly- The symptoms are similar to natural labor except that, in premature labor, the animal almost always strains while standing, while in normal labor the position may be either lying or standing and frequently both positions are taken alternately while straining. During natural labor the mouth of the womb is open while, during premature pains, it is closed for a considerable length of time. The

straining is intermittent and sometimes very forcible and, if not overcome, results in abortion.

TREATMENT :—Give dram doses of Powdered Opium every hour until the straining stops; then give at one dose the following mild physic :

Magnesia Sulph., twelve ounces.

Ginger, one-half ounce.

Water, two quarts. Mix.

If this fails to act in thirty-six hours, repeat the dose.

POST-LABOR PAINS.

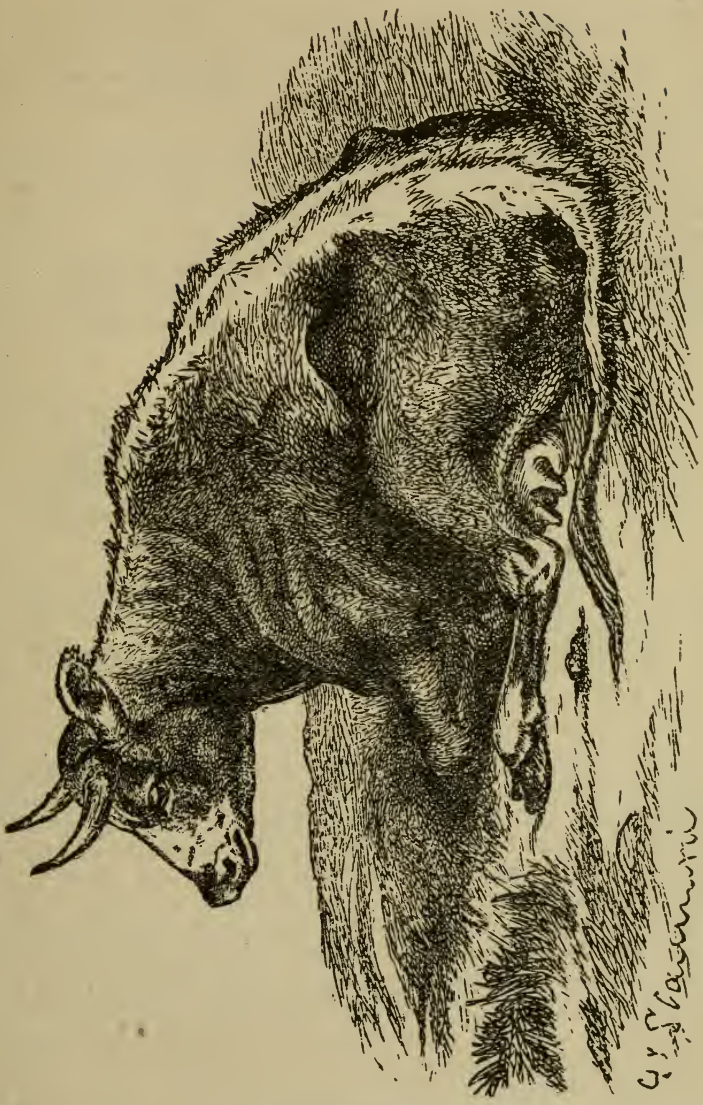
The painful sensations of the womb after the expulsion of the fœtus and secundines (which are frequently observed) are sometimes termed *after-pains.* They are due to contractions of the womb which continue for some time in order to reduce its volume and cast off the membranes. They are seldom seen after an easy delivery and, when they are seen, last but a short time. But when there is difficult or protracted labor the after-pains may last twenty-four or forty-eight hours; or, if some of the placental membranes are attached, the straining is liable to be prolonged. The animal will arch its back, contract the abdominal muscles and strain violently, as though trying to deliver another fœtus. If retention of the membranes is the exciting cause, they should be removed at once, as otherwise the after-pains will be continued and result in inversion of the womb. After an exploration to discover the cause of the after-pains, and removal of the membranes, should you find any bruises or lesions of the vagina or womb, wash out thoroughly with warm water and afterwards with a fifty per cent. solution of Permanganate of Potassium. Also give at one dose the following mild physic :

Sulphate of Soda, twelve ounces.

Ginger, one-half ounce.

Warm Beer, one pint. Mix.

Then apply a truss, such as is used for inversion of the womb.

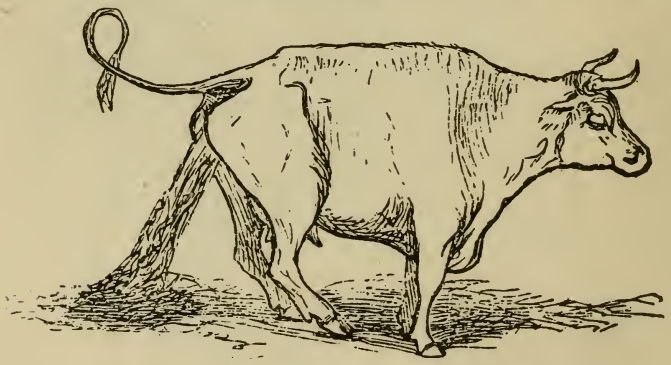


AFTER PAINS.

POST-PARTUM HEMORRHAGE, OR FLOODING.

Bleeding from the womb, or "flooding," after abortion or after delivery at full term, occasionally occurs among domesticated animals and is very fatal.

Causes: Injuries to the womb during expulsion of the fœtus; premature removal of the placenta; partial adhesion of the placental membranes; feeble development of the uterine walls and insufficient contraction of the womb. If a slight dribbling stream is noticed, an examination of the vagina will probably reveal slight lesions there, which seldom do any harm. But if the blood issues forth in torrents and there are



POST-PARTUM HEMORRHAGE, OR FLOODING.

a quick weak pulse, pale mucous membranes, increasing prostration, staggering gait, chilliness of the surface, coldness of the limbs and breaking out of a cold clammy sweat, the bleeding is great and, if unrelieved, will terminate shortly in death. The treatment must be very prompt and effective or death will speedily follow. First, examine to ascertain the cause. If part of the membranes still adhere at once remove them; but do so carefully or you will increase the hemorrhage. Remove all clots of blood. Then apply cold water over the loins. Also dip your arm into cold water, insert it into the womb and move it around, which sometimes will induce contraction of the womb and thus stop the bleeding. If not, take a soft cloth or a sponge, dip into cold water, and insert in the womb; or inject cold water into the womb; or use injections

of cold water and Per-chloride of Iron. If there is much prostration the following will prove very beneficial:

Brandy, one pint.

Tinct. Per-chloride of Iron, four ounces. Mix.

Give three ounces every two hours in a half pint of hot water as a drench, after which place the patient in a good comfortable stall, well bedded and feed on soft nutritious food.

RETENTION OF THE PLACENTA, (AFTER-BIRTH.)

Beyond a certain period after the expulsion of the fœtus, the retention of the placenta or "after-birth" should be considered unnatural and to require some attention. With mares this seldom occurs, but in cows, owing to the peculiar attachment of the membranes, it is quite frequent. In the mare the placenta is attached by fine villi, which are easily detached and the placenta is only retained by abnormal adhesions. In the cow the placenta is attached by cotyledons varying from forty to one hundred in number, which are so constructed that entanglement of the membranes is liable to occur at any time after calving. From this peculiarity of construction abnormal adhesions are more frequent than in the mare. The natural mode of expelling the placenta is by the contraction of the womb, although I have seen cases where the womb had contracted and the *os uteri*, or mouth of the womb, completely closed and the fœtal envelopes, completely encased within the womb, and could only be removed by forcible dilatation of the os. But these are exceptional cases. The general rule, where there is retention of the membranes, is that the womb will contract but its mouth will remain open with part of the membranes protruding through it. More frequently the membranes are visible, hanging down from the vulva. In the mare, the placenta, if not expelled by the efforts of nature, should not be allowed to remain undisturbed, but should be removed within twelve hours after foaling. With the cow danger is less imminent, and unless straining or hemorrhage are prominent symptoms, the placenta should not be disturbed for at least three days, during which time—if not detached naturally—decomposition is liable to occur. If this be the case it should be immediately removed or chronic inflammation of the womb and vagina may follow and leucor-

rhœa (or whites) be the result. When the placenta is not expelled shortly after calving the following may assist its removal:

Gentian, one-half ounce.

Ginger, one ounce.

Fœnugrec, one ounce.

Anise, one ounce.

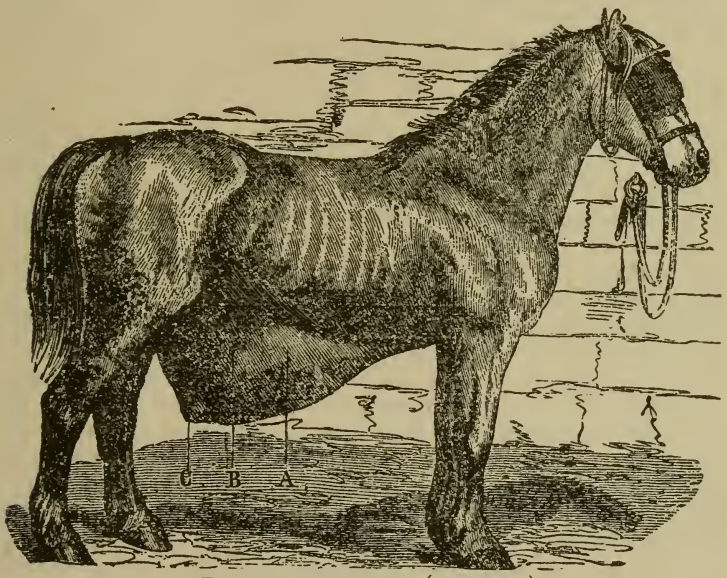
Bi-Carbonate of Soda, one ounce. Mix.

Make two powders and give morning and evening. After a lapse of three days it is advisable to remove the placenta by a manual operation. First see that there are no abrasions of the skin on your hand or arm, through which absorption of putrid matter can take place and so lead to blood poisoning. Then grease your hand and arm and pass between the placenta and the walls of the womb. As you meet the cotyledons unfasten the membranes in the same manner in which you unbutton your coat; proceed to the next and so on until you have unfastened them all. Use gentle traction with the other hand all the time, as some of them will be detached by traction alone. When you have detached the placenta from all the cotyledons it will drop out easily. After the placenta is detached when there is a very fœtid odor, wash out the womb thoroughly with a soft cloth and warm water to which may be added a dram of Permanganate of Potassium. Then feed on a nutritious diet, to which add a dessert spoonful of Scotch Compound morning and evening. In the mare take the same precautions before removing the placenta. Grease the arm thoroughly, then pass the hand gently between the placenta and womb, separating the attachments slowly and carefully, using traction with the other hand. If the attach ments are very close or abnormally adhered break them down, when the placenta is easily removed. Keep her quiet for a time; feed soft food to which add twice daily a spoonful of Scotch Compound.

HERNIA OF THE UTERUS (OR WOMB.)

This accident is not frequent though it sometimes occurs. During the eleven years of my practice I have worked extensively in obstetrical cases and have seen only five mares with hernia of the womb and not one cow. Hernia of the

womb consists of a breaking down or separation of the abdominal muscles through which the womb and contents pass until they come in contact with the skin, which, from its elastic nature, is carried down sometimes within fifteen to eighteen inches from the ground. The bag and teats are generally carried down with the skin and frequently form the lowest point of the tumor. The causes of uterine hernia are none too thoroughly understood, but that which seems to me the most reasonable supposition is that the uterine muscles become ruptured or relaxed, thus allowing the gravid uterus to rest entirely upon the abdominal muscles. These become



HERNIA OF THE UTERUS (OR WOMB.)

weakened from the abdominal strain, after which the energetic movements of the fœtus materially assist in forming the rent in the abdominal muscles. The first case of this description that I ever saw I was somewhat puzzled as the owner did not know whether the mare was in foal or not; and I was unable to ascertain any signs of life, though the mare presented the appearance of being with foal. I then determined upon exploring the tumor by inserting a small trocar and canula. In

a moment the amniotic fluid began to escape and soon the fœtus began to struggle. I immediately withdrew the canula and applied bandages. In about a month after I delivered her of a dead colt fully developed. The operation was rather difficult and the mare died in a few hours. A *post mortem* examination revealed a complete rupture or rather lacerations of the Oblique muscles as well as of the Rectus muscles and Linea Alba. Had the mare lived she would have been useless either for work or for breeding purposes.

This accident seldom takes place until within the last two months of pregnancy. When it befalls a cow I would recommend that she be fattened and sold to the butcher. But mares, which are not used for food and can be utilized in no way other than breeding or working, may be bred again. I have known one mare, which I was called to deliver on account of a wrong presentation, and which had a comparatively bad uterine hernia, to bring forth two living foals, entirely unassisted, during the next two years after my attending her. After this she was sold, left the neighborhood, and I lost trace of her. When females are found to be in this condition previous to time of delivery, they should be supported with broad bandages. At the time of delivery trouble should be anticipated and they should receive prompt attention. If unable to deliver spontaneously have a number of assistants to place a broad blanket under the abdomen and raise it up as high as possible. Then, should the presentation be the buttock, the operator should push it a little toward the side opposite to the legs and seize the hind legs, one at a time, and bring them into the natural passage. Fasten a quarter inch rope, well greased, around the pasterns separately. Then pull with considerable force, the assistants still holding up the abdomen, and you may expect a safe delivery, providing there are no malformations. If it be a head presentation, fasten a rope around the neck and lower jaw; then push the head in and to one side. Next endeavor to bring the front feet up into the natural passage, fasten a rope around the pasterns, then draw the head back between the front legs and pull. Use plenty of fresh hog's lard if the membranes are in the least dry, also have all ropes or straps well greased while using them to assist delivery. If you are unable to deliver in this position make a deep soft bed of straw and, if the animal will lie down,

all the better. If she will not lie down herself, lay her down as easily as possible. Then secure her limbs to prevent her doing injury, roll her on her back; have plenty of assistants to hold her there with her hind quarters raised higher than the fore. Have some handy assistant to try to reduce the tumor while the operator is trying to seize the parts which are most convenient. If there be a head or a breast presentation secure it in the manner prescribed before and, when everything is straight, apply traction and complete the delivery. But, in case you cannot deliver by the natural passage, and the colt is living and would prove more valuable than the mother, you can secure the animal and perform the Cæsarean section, which is to open the abdomen sufficiently to deliver the fœtus in that way, after which I believe it profitable to destroy the mare and raise the colt on cow's milk. But in the case of the cow you may stitch up the womb after removing the after-birth; then stitch up the integument (skin) and try to save her. If she lives, she should be fattened for slaughter.

RUPTURE OF THE PERINEUM.

Generally this accident is the result of difficult parturition though sometimes it is caused by unruly stallions. As a result of parturition rupture of the vagina is a frequent occurrence, and sometimes we meet with rupture of the perineum and rectum combined. In other cases the perineum may be ruptured and the sphincter muscles undisturbed; while in some cases the rupture will extend clear out, severing the sphincter muscles. If the fœtus be not in a natural position, the uterine contractions driving it backward may force the limbs or head may be forced through the perineum and be presented at the anal opening. If assistance is not at hand and the parts presenting are not returned and placed in the proper channel the expulsive efforts of the mother will cause them to tear the perineum and sphincter muscles asunder and thus deliver the fœtus,—sometimes dead and sometimes living—but leaving an unsightly appearance, as the vagina and rectum are one continuous slit. The results vary, owing considerably to the extent of the injury. If the laceration is not great no serious results need be anticipated. But if the laceration be great and the sphincter be torn through, a suppurative inflammation may occur with a continuous discharge of pus, smearing the

tail and legs and causing the animal to present an unsightly appearance. Others seem to experience no inconvenience, a partial recovery takes place, the animal appears perfectly healthy, may breed again and bring forth its progeny without any evil results.

TREATMENT :— Trim off evenly the lacerated margins, bringing them together with the cat-gut suture, using the interrupted stitch. Then introduce a tampon or plug into the vagina to support the septum during defecation. Apply cold water frequently to keep down the inflammation and twice daily use the following dressing all along the laceration :

Vaseline, four ounces.

Carbolic Acid, two drachms. Mix.

Should the stitches tear out you may replace them a second or third time. After that it will be useless. While the stitches are intact place the animal in a narrow stall to prevent her lying down. If there is much bleeding when the laceration occurs, arrest it with cold water; if that fails, apply Tinct. Per-sulphide of Iron. Feed on soft, sloppy food, and give frequent injections of pure water, to soften the dung and thus relieve the strain on the perineum.

METRO-PERITONITIS, OR INFLAMMATION OF THE WOMB AND PERITONEUM.

This disease affects animals of all ages and results from difficult parturition, retention of the fœtal membranes, inversion of the womb, exposure to wet and cold, drinking ice-cold water, etc.

SYMPTOMS :—The disease may occur from within a few hours after parturition up to the fifth or sixth day. At first the animal will appear dull with loss of appetite; visible mucous membranes injected (red); secretion of milk diminished; pulse quick, full and hard; bowels constipated; urine diminished in quantity; colicky pains are present, manifested by frequently lying down and getting up until lying down becomes too painful, from the pressure of the abdominal muscles on the womb; striking at the belly with the hind feet; pointing with the nose at the flanks; respiration accelerated; abdomen tucked up. As the disease advances the pulse grows small, feeble and

wiry; the animal becomes insensible of objects around her and plunges about with great violence; death shortly follows.

Treatment:—First examine the womb. If any of the membranes adhere they should be removed at once. Wash the womb out thoroughly with warm water, to which add a little Carbolic Acid—one part of acid to forty of water. This should be repeated twice daily. If the bowels are constipated and the patient is a mare give the following physic at one dose in half a pint of water as a drench:

Aloes, one ounce.
Calomel, one drachm.
Ginger, one-half ounce. Mix.

For the same condition in a cow give at one dose in a gallon of water, the following—

Magnesia Sulph, twenty ounces.
Calomel, two drachms.
Ginger, one ounce. Mix.

After which give every four or five hours one of the following powders—

Quinine Sulph, four drachms.
Salicylic Acid, four drachms. Mix.

Make into six powders. Or the following, given every four hours, will be found beneficial—

Liq. Ammonia Acetate, three ounces.
Fluid Ext. Aconite, twenty drops. Mix.

If the animal's temperature remains high, place a sheet, wet with cold water, around the body and keep wetting it with a sprinkling can for an hour, after which rub the animal dry and place warm dry blankets over it. When convalescence has occurred good food and tonics should be administered. Give one of the following powders three times a day—

Powdered Sulphate of Iron, one and one-half ounces.
Nux Vomica, two ounces.
Ginger, one ounce.
Potass. Nit., one and one half ounces. Mix.

Divide into sixteen powders. While the pain is very severe the application of mustard to the abdomen is very bene-

ficial. After the disease has abated, if there is a chronic discharge from the womb, the treatment given for Leucorrhœa will suffice. The person examining the womb should be very careful and see that there are no fresh sores on his hands or arms and grease them thoroughly to prevent innoculation and blood poisoning.

UMBILICAL HEMORRHAGE, OR BLEEDING FROM THE NAVEL.

Bleeding from the umbilical cord, of an alarming nature, is not a very common accident, nevertheless it sometimes occurs and occasionally so profusely as to cause death. It generally happens immediately after birth or within a short period afterwards and may continue for some time in small quantities, but sufficient to produce great debility. The bleeding is generally caused by the cord's being cut or broken off too close to the abdomen; it may be due to a varicose condition of the cord. Sometimes, after the cord is tied, when sufficiently long enough to admit of it, the mother will nip it off closer and so induce bleeding.

TREATMENT:—When the bleeding is slight and not likely to be continued, little or no treatment is required. If possible, seize the cord and tie; if not, apply tannic acid, alum, or perchloride of iron and bandage, after placing some cotton batting saturated with Monsell's solution of iron upon the cord. Or you may take a needle and thread and pass it through the skin on both sides of the cord, then tie it tightly and you will completely close the opening, but in doing this be careful not to penetrate or include the intestines.

PERSISTENCE OF THE URACHUS, OR URINE PASSING FROM THE NAVEL.

What is understood by the urachus is the canal formed by the middle portion of the atlantois, which passes through the umbilical ring and communicates with the bladder and through which the urine is conveyed to the atlantoid sack, during fœtal life. After birth the urachus should become obliterated and the bladder should be retracted and further developed within the pelvic cavity, the urine then passing through the natural

channel. It sometimes happens the urachus does not close up and disappear and the urine is passed through the naval. It more frequently occurs in males than in females. In the latter it generally comes by drops and quite frequently ceases spontaneously, while in the male it usually runs in a stream and is more dangerous.

TREATMENT:—In a great many cases no treatment is required, the escape of urine ceasing in a few days after birth; but, where treatment is demanded, a cure can usually be effected. If the urachus is sufficiently long, seize it and tie it. If this cannot be done, grasp the cord between the thumb and fingers and raise it up; then pass a stitch in a circle clear around the cord and tie it tight. The urachus is then closed. But be careful not to gather any more skin than is actually necessary into the stitch. If the urethra, or natural channel for the urine to pass by, is not opened, get the longest human catheter obtainable and pass it to open the channel.

UMBILICAL HERNIA, OR RUPTURE OF THE NAVEL.

Rupture of the navel is most frequently congenital, although it sometimes occurs two or three months after birth, when it would be called accidental hernia. A small round tumor, situated at the navel opening and varying in size from that of a bird's egg to that of a goose egg or even larger, is observed. It is usually soft and fluctuating and easily reduced within the abdominal cavity by manipulation with the fingers, just as readily returning when the hand is removed. Sometimes it presents a doughy or hard appearance, when probably the intestines within the sack are filled with alimentary matter. When the intestines are returned the opening will present a circular or elliptical shape and around the edges it will be tense and hard to the touch.

TREATMENT:—In a great majority of cases when the tumor is not very large, if allowed to remain undisturbed, nature will bring about a complete cure varying in time from three months to three years of age. I have applied a broad bandage with very gratifying results and would reccommend it strongly. Constriction of the tumor is an excellent method of effecting a cure. First cast the animal and secure it firmly, place it on its

back and maintain it in that position. Then manipulate the tumor until the intestines are returned to the abdominal cavity. Next grasp the skin over the tumor and raise it up as far as you can stretch it and fasten a pair of clamps as close to the abdomen as possible. Fasten them tightly. Then put a couple of wooden pegs through the skin, protruding beyond the clamp, to keep it from slipping off when the animal is standing. In this way you set up an adhesive inflammation, forming a plug filling up the opening by the time the clamp sloughs off. Some practitioners reccommend the application of nitric acid to the tumor and report good results; but I have never tried it. But to inject into the sub-cutaneous connective tissue a few drops of salt water, around the rupture, will, in a great many cases, through irritation set up a healthy inflammation, throwing out a plastic substance, filling the cavity, thus forcing the intestines back within the abdominal cavity and completely plugging up the opening. This operation can be done with the ordinary hypodermic syringe, care being taken not to insert it too deep.

RETENTION OF THE MECONIUM, OR CONSTIPATION SHORTLY AFTER BIRTH.

The contents of the intestines previous to brith are called Meconium. This is generally expelled immediately after birth; but when it is retained for any length of time serious results follow if left unrelieved. This occurs, perhaps, more frequently with the colt than with any other animal, but occasionally happens with calves. It generally occurs in animals that are weakly and not thoroughly developed. It is generally caused by the mother's being fed on dry fodder for a length of time or by her milk being thin and not rich in those purgative elements so necessary for the newly born animal. Hence it is generally seen in those colts and calves that come in the winter and early spring, previous to the mother being turned out to pasture.

SYMPTOMS:—Within a few days after birth the little animal appears uneasy and refuses to suck; shows symptoms of colic, lies down and rolls around, occasionally looking toward the abdomen; when standing, the back is arched and attempts to pass manure and water are frequent; pulse and respiration

are frequent and sometimes the respiration is labored; the eyes are injected (red); grinding of the teeth is a frequent symptom.

TREATMENT:—The proper treatment is to attend to the feed and condition of the mother previous to parturition. The diet should be soft and nutritious. Immediately after birth the young animal should be fed the first milk the mother gives as it contains purgative elements so necessary for the moving of the bowels. If the bowels do not move, remove all the fœcal matter you can with the oiled finger, after which give frequent injections of warm water and castile soap, or injections of oil. Feed the mother on a soft sloppy diet, to which may be added a mild physic. Should the bowels fail to respond, give two ounces of castor oil, to which you may add a desert spoonful of brandy with a little sweetened water; or you may give every two or three hours two ounces of cod liver oil with a little brandy and a little sweetened water. Keep the little creature warm with blankets, rub the limbs with dilute alcohol and bandage.

PRESENTATIONS AND POSITIONS OF THE FŒTUS.

We have before spoken of normanal parturition, where the fœtus was presented in a natural position and the mother had power to expel it. We will now consider the various presentations and positions of the fœtus during parturition. They should be well studied, as the different modes of delivery are of much importance practically to the obstetrician. When we remember that during gestation the fœtus in the womb assumes so many different positions, it is not surprising that in delivery so many different presentations occur. Notwithstanding there is supposed to be some agency or influence to induce the fœtus to assume a natural position and presentation at delivery this is not always the case; and, instead of the fœtus being in a favorable position, it frequently requires assistance to change the false position assumed by the young animal at the termination of gestation.

What is understood by presentation is that part of the fœtus which presents itself first at the pelvic inlet, or that part of the fœtus which the hand of the operator touches when making an examination as to position—which may be the head,

forefeet, hocks, breast, abdomen, sides, etc. Presentation may vary exceedingly as any part of the fœtus may occupy the space at the mouth of the womb. I will condense and simplify as far as possibly, the description of these presentations and positions, in order not to confuse the mind of the reader.

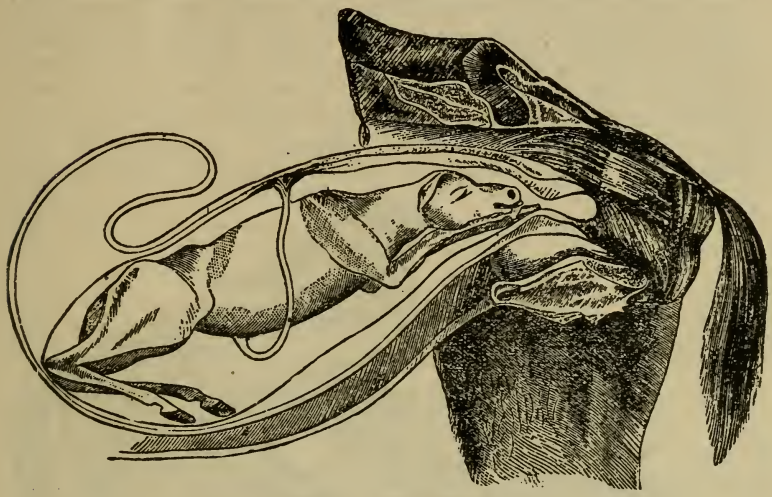
Presentations may be grouped in four classes, viz.: Anterior Presentation, when the head, neck, chest, forefeet or forelimbs are presented; Shoulder and Loin Presentation, when any portion of the body is presented, as the shoulder, withers, back, loins or haunches; Breast and Abdominal Presentation, in which the limbs are most frequently felt first, possibly all four feet, or only three of them, and sometimes only one; Posterior Presentation, in which the breech or croup is facing the inlet and the presence of the limbs there only constitutes a different position.

The different positions in which a fœtus may be found with any of these presentations are numerous. For instance, with Anterior Presentation the withers or the fœtus may rest against the spine of the mother, and the breast against the lower part of the pelvis; or it may be just the reverse; or the fœtus may be lying on its right or left side, when its ribs would rest against the mother's spine and against the lower part of her pelvis, the breast facing either the right or left ileum, and the withers the opposite; the head may deviate to the right or left; one limb may be retained, or crossed over the neck; or both limbs may be retained, etc.

ANTERIOR PRESENTATION.

This is the only natural presentation of the fœtus, and in this presentation the different positions of the young creature frequently require the aid of art to complete the delivery. But when the presentation is natural and nature has brought about the necessary changes in the generative organs of the mother, delivery is comparatively easy and successful. In this position the fœtus at the inlet should present the fore feet first with the head lying upon or between them, the withers toward the spine of the mother, and the breast resting upon the pubes. When the fœtus is found in this position, it should be left undisturbed for a time, as the contraction of the womb gradually increase in force. The abdominal muscles are now brought

into play, the animal makes a few extra efforts, and, generally, the fœtus is expelled. But, if the mother is laboring hard and the progress is very slow, man's intervention is necessary. You should then seize the young animal by the forelegs, and,



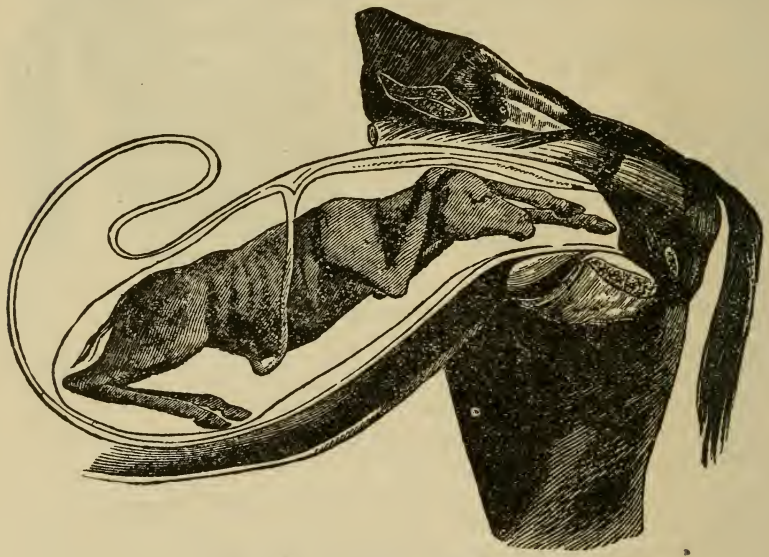
ANTERIOR PRESENTATION.

at each succeeding labor pain, use traction until the little creature is born. In using traction, always pull outward and downward toward the mother's heels. Immediately after the birth, tie up the navel about three inches from the abdomen. Then allow the mother to have care of her young.

FORE LIMB CROSSED OVER THE NECK.

It is not at all uncommon to find colts and calves in this position, and delivery very much retarded or incomplete without assitance. Though I have no doubt that delivery has been completed in this position without assistance, the cases where the mother has not been more or less lacerated are exceptional. In this position, instead of the shoulders being lodged in the hollow space along the side of the neck, they are held back along the side of the chest, increasing the transverse diameter as it enters the pelvic inlet, instead of diminishing it, thus retarding the delivery. But if the limbs are crossed over the

neck up at the poll it is still more dangerous. In all complications tending to retard delivery the mother becomes more excited and the labor pains more violent and irregular. Then with the limbs crossed at the poll, the feet are pushed against the roof of the vagina, causing laceration of that part Sometimes they are pushed through the roof of the vagina into the rectum, producing a rupture of the perineum. In the more favorable cases the limbs are crossed far enough over the neck to allow the knee to become flexed, turning the feet downward. There is then but little danger of rupture of the perineum, but the labor is protracted and severe and certain to result in con-



FORE LIMBS CROSSED OVER THE NECK.

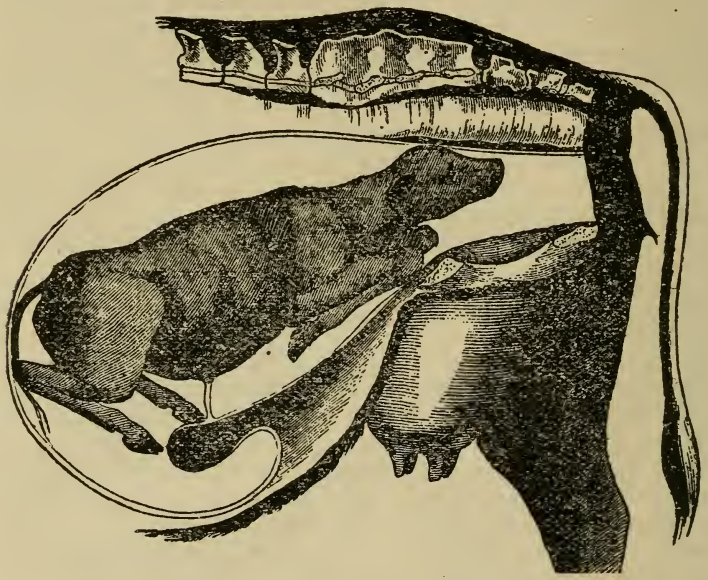
tusions of the vagina, to a greater or less extent. This position is frequently recognized before an examination is made. If the fore feet are seen pressing against the roof of the vagina at the outlet, the probabilities are that both legs are crossed over the neck. If only one foot is seen pressing the roof of the vagina, or if both feet are observed on one side of the head, the one leg shorter than the other, only one leg is crossed. If only one leg is crossed it may be placed in position without much

difficulty and without the trouble of pressing the fœtus back into the uterine cavity. Seize the leg above the fetlock, raise it up and draw it to its proper side; then place one hand on the head of the fœtus and hold it firm, with the other hand extend the leg forcibly, when it will readily straighten out into position. Delivery may then take place without help, or a little help with the head and limbs may be beneficial. When both fore limbs are crossed over the head the case is more difficult to handle. If the feet are visible, fasten a half inch rope to each separately, then force the fœtus back within the womb by pressing upon the head. Then the operator should place the feet to their proper sides, if possible. If he cannot do this, bring the ropes to their proper sides, and, while the operator holds the head back firmly, let an assistant pull the rope on one side until that limb is brought into position. Then take hold of the other rope and fetch that into position. Then place the head straight in a line above and between the limbs, and delivery will be effected with but little help.

FORE LIMBS FLEXED AT THE KNEES.

In this position the difficulty, as a rule, is easily overcome. When the labor pains first commence, if the feet are not lifted high enough to enter the pelvic cavity, they become lodged against the lower border of the pubes; and, as labor progresses, the head is forced onward, the feet being retained, the fore legs become flexed at the knees and there they remain with the knees pressing up against the lower part of the neck. If on examination is made before labor has progressed any length of time, the nose and knees will be felt at the same time. But if labor has progressed any length of time, the head will be forced farther out. Then the operator on exploring, will first came in contact with the head, for sometimes it is advanced in the passage even as far as the out-let. The object now to be obtained is to straighten the forelegs, in order to complete the delivery, as the vertical diameter of the pelvis will not admit of delivery with the fore limbs beneath the breast. The operator will have but little difficulty, if called early enough, or before the head has passed any great distance into the vagina. If the head has made but little progress, the operator, upon examination, will feel the knees as readily as the head. While ascertaining the position of the legs you will

almost always find that one has greater liberty than the other, and, if seized by the fetlock, can be thrown easily into its natural position. Then seize the other leg just below the knee raise it up with the lower part of the hand, while pressing backward with the upper part of the hand, and that leg can be brought easily into position. Use the right hand to handle the left fore leg, and the left hand for the right fore leg. If the



FORE LIMBS FLEXED AT THE KNEES.

head has been forced well into the passage or presented beyond the outlet, the case will have to be handled differently. First fasten a small, well greased rope around the neck, then grasp the head, and, during the intervals between the labor pains, force it back into the womb. Then grasp the legs separately below the knee and raise them up, pressing backward at the knee and forward further down the leg, and in this way bring them into position. If they cannot be brought up in this manner, fasten a small rope around the fetlock of each leg, then bring them into position separately. The operator must take hold of the knee and force it back into the womb while an

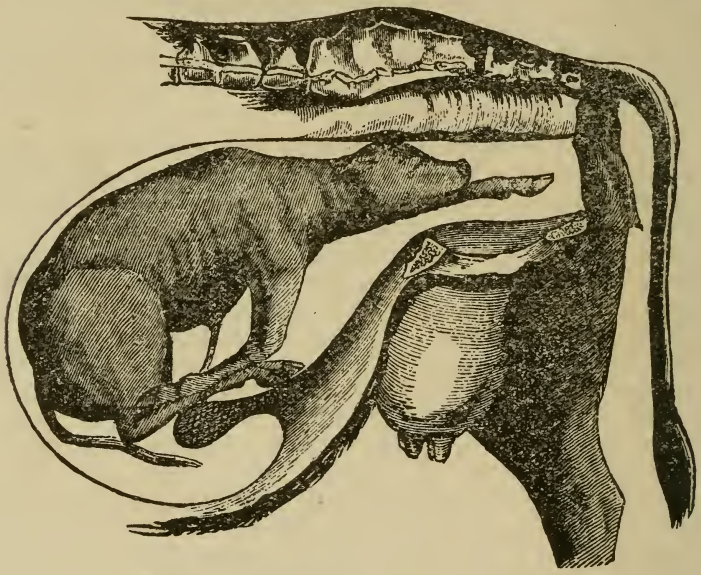
assistant draws on the rope. In this manner you will force the leg upward and outward, into the proper position. Then fetch the other limb up in the same manner. If the head is presented beyond the outlet and the little creature is dead, the only thing to be looked after is the preservation of the mother. First cut off the head close to the skull, then cut a hole through the skin and flesh about six inches back on the top of the neck and guide the knife so as to pierce between the first two bones of the neck. Then pass a small rope through the first bone of the neck and through the opening and tie it. You then have a hold that will stand a pull. You must then force the fœtus back into the womb, raise the fore feet as described, fetch the neck into position and deliver.

If the colt or calf is lying upon its back with the legs turned upward within the womb, it will be impossible to extract it in that position. It must be turned which will prove a difficult task. In this position a great deal depends upon the judgment of the operator. If the mother is lying down the hind parts should be raised higher than the fore quarters. Seize the fœtus and fasten a small rope around each fore fetlock and another around the jaws. Then, if the fœtus is slightly turned to the left, let the operator pass his right hand under the left shoulder. Have the rope attached to the right leg pass out on the lett side of the head. Then, at each labor pain, draw tightly upon the rope, and with the hand under the shoulder, raise up with a rotary movement. In the course of time you will completely turn the little creature around to a proper position. Proceed in a manner precisely the reverse it the fœtus is turned to the right. When the proper position is gained, delivery will be easy. If the mother can be kept in a standing position the fœtus can be much more easily handled.

FORE LEGS COMPLETELY RETAINED.

The complete retention of one or both of the fore legs of the fœtus within the womb with head presentation is frequently met with in veterinary practice. With the mare the case is somewhat serious, the colt usually dying before delivery is completed. But with the cow the danger is not so great; the calf, in all probability will be delivered alive. The position is, no doubt, assumed during birth in the same

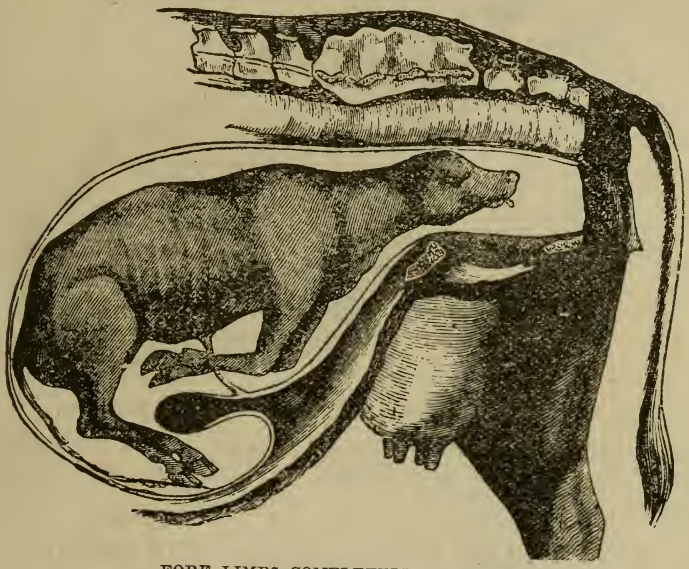
manner as knee flexion. It is possible for the fœtus to be delivered in this position, but it would have to be very small, and the vagina of the mother very large and roomy. This position is more frequently seen in the colt than in the calf, a fact probably due to its having much longer legs. In making an exploring examination, to determine the true position, the hand will touch first the head, sometimes at the inlet, at others further outward within the vaginal passage. If both limbs



ONE FORE LIMB COMPLETELY RETAINED.

are completely retained, the head may be forced well into the vaginal canal or even to the outlet at each labor pain, but retracting immediately after each pain ceases. Sometimes it is with the greatest difficulty that the fore legs are reached, owing to the vast dimensions of the womb, although the arm may be introduced without trouble. When the legs can be felt they are usually lying immediately under the abdomen or beside the chest and flanks. The main object now is to reach the legs with the hand and bring them forward to the knee position first. In order to do this it may be necessary

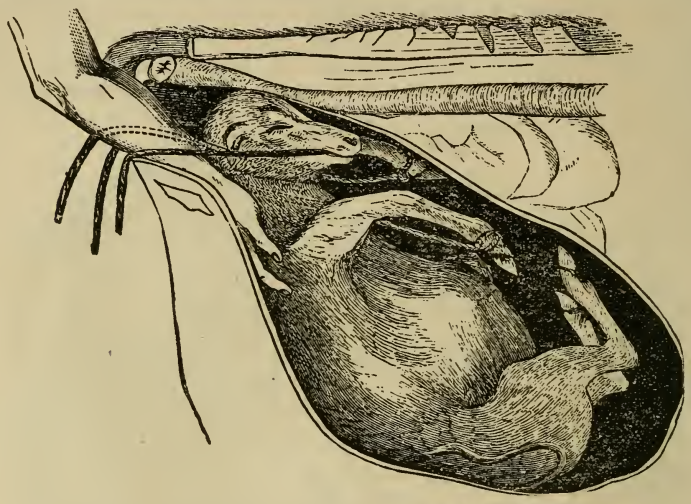
to force the head back within the womb. If so, first place a rope around the neck and lower jaw, then force it back within the womb during the intervals between the labor pains. Then pass a rope around the fore-arm of the colt or calf, pushing it well down toward the knee, and use gentle traction until you bring the knee up to the passage. You may then fasten the rope to the fetlock, and have an assistant to use traction up-



FORE LIMBS COMPLETELY RETAINED.

ward and outward, while you grasp the knee and force it upward and backward within the womb. Next bring the other leg into position in the same way. In this manner the fore legs are brought into proper position. Then you should find the head and place the hand under the nose and lower jaw, and have an assistant pull upon the rope which was fixed to the jaw until the head is brought into position, but little force may be required after this to complete the delivery. If the head presents beyond the outlet and the fœtus is dead you should remove the head before forcing it back within the womb, (this operation is described under the head of *Fore Legs Flexed at the Knee*). Then proceed as before

described. Indeed it is sometimes necessary to decapitate a living fœtus, in order to save the mother. To place a rope around the neck in this position and apply force without plac-



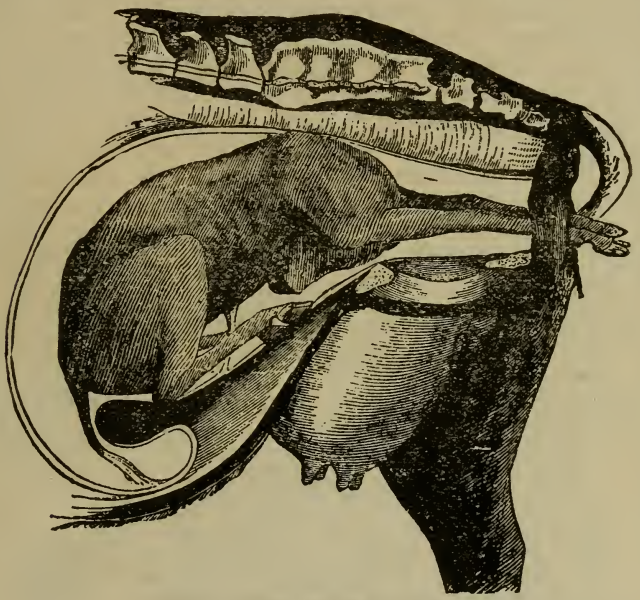
FORE LIMBS COMPLETELY RETAINED—REVERSE POSITION.

ing the fœtus in position is brutal and the law for the prevention of cruelty to animals should be rigidly enforced in such cases.

DOWNWARD DEVIATION OF THE HEAD.

Downward deviation of the head may exist from mere flexion of the head on the first bone of the neck, the nose being caught on the lower bone of the pelvic inlet But when the downward deviation is great the upper part of the head comes in contact with the lower border of the inlet and is forced down beneath the chest and abdomen. The cause usually is premature rupture of the fœtal membranes and the nose or head catching on the pelvic border as the fœtus is en tering the inlet. If the feet are in a proper position and the nose catches on the lower border of the inlet, the contractions of the womb will force the upper part of the head and neck into the genital passage

along with the feet. Then the operator, on passing the hand to explore matters, will come in contact first with the feet and next with the top of the head. During the intervals of labor he should press backward and upward against the top of the head; then pass the hand down under the nose, seize the lower jaw and raise upward and outward. The head will be easily thrown into the natural position, when delivery may



DOWNWARD DEVIATION OF THE HEAD.

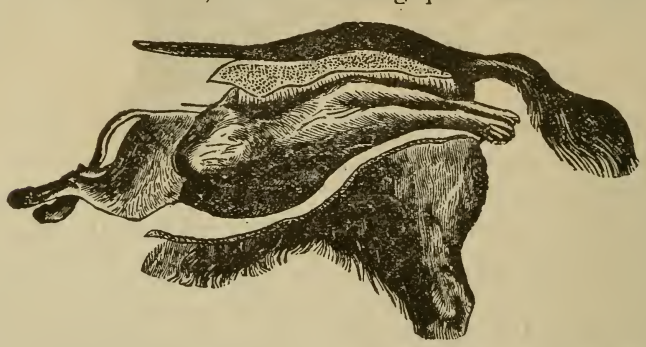
be completed in the usual way. But, if the pains have forced the head and neck outward, so that they are firmly wedged in the passage, take a crotch and place it against the shoulder and force the fœtus back within the womb a distance sufficient to admit of raising the nose and placing the head in a proper position to allow a natural birth. This may take some time but can be accomplished.

When the top of the head rests against the lower border of the inlet the case is a little more difficult but can be brought into position by passing the hand down to the nose and fastening a rope to the upper jaw. Then let the operator press

backward on the side of the neck and an assistant draw upward and outward on the rope, and most frequently the head will be brought in position. But, if labor has been progressing some time and some wise fool has been pulling at the legs, the head will be forced down underneath the chest and, possibly as for back as the abdomen. You then have one of the most critical cases to deal with. Indeed, so critical is the case, you may consider yourself extremely fortunate should you complete a delivery and save the life ot the mother. You may take a couple of blunt crotches and place them against the shoulders of the fœtus and push it back within the womb. If you succeed in this, you may reach the head which you may fasten with cords, as before described, and raise it up. If you fail in this you may return the fore limbs and try to turn the fœtus around and deliver the hind feet first. Failing in this, you may cut off the head when you feel the neck and then deliver; or, amputate the legs at the shoulder and then deliver. Use plenty of fresh lard and handle the knife carefully.

LATERAL DEVIATION OF THE HEAD TO THE RIGHT OR LEFT.

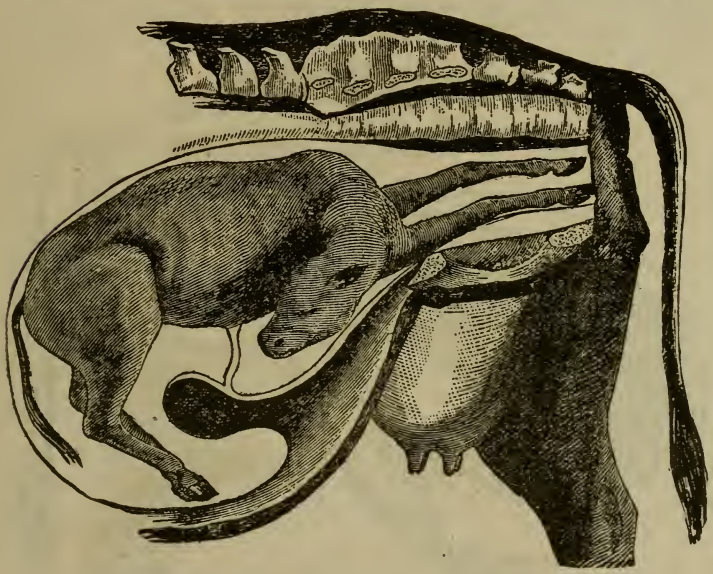
In this position the head is carried either to the right or left side of the fœtus, and the fore legs presented either in the



LATERAL DEVIATION OF THE HEAD TO THE RIGHT OR LEFT IN AN UPWARD POSITION.

genital passage or at the outlet. It is a very difficult case to handle. It may be caused by uterine contractions taking place

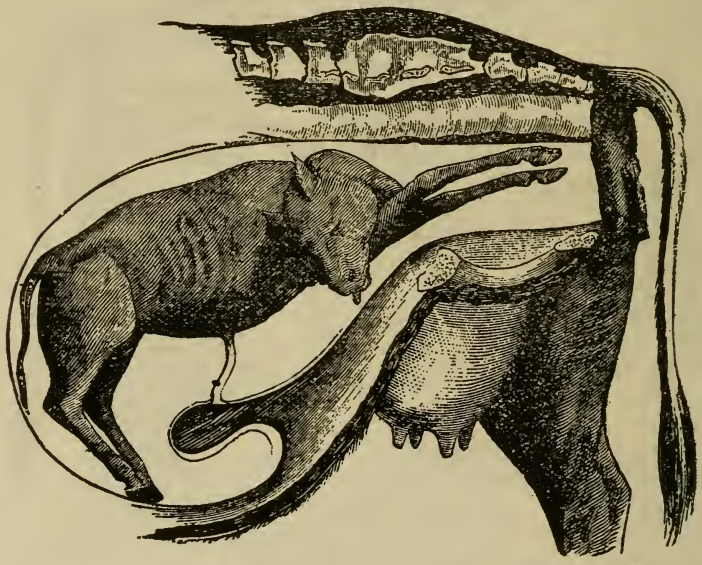
too strongly before the mouth of the womb is thoroughly dilated. If the nose is not in a straight line with the opening, when partially dilated the fore feet may pass through and as the uterine contractions increase in force the head is forced off to one side. Sometimes it rests back on the shoulders, at others down along the back or sides, and it may be down by the flanks of the mother. I have delivered two cases when the deviation was to the right side and the colts were wry-



LATERAL DEVIATION OF THE HEAD TO THE RIGHT OR LEFT.

necked and could not be straightened after delivery. One was born dead and the other, to my knowledge, lived for two years with a crooked neck. It was then sold and taken out of the neighborhood. As a rule it is not hard to distinguish this position of a colt or calf. The fore legs will be presented in the genital canal, but birth is retarded and on the side to which the head is turned the leg will appear shorter than the other. On being passed beyond these the hand comes in contact with a bulky mass occupying the whole space of the inlet, rendering access to the uterine cavity difficult. Upon

examination this will be found to be the neck; and, by tracing it up, the ears, eyes and frequently the nose can be felt,—it a calf. But, it a colt, it is seldom that the nose can be felt it the uterine contractions have continued for any length of time. The colt's head will be pushed back toward the chest, abdomen or flanks, when it scarcely can be reached. This position is not only frequent but serious, as it is impossible for birth to occur without assistance, and this requires strength, perseverance and ingenuity. The object now is to get hold of the head and bring it into a favorable position and then complete the delivery. But this cannot be done very easily, especially



LATERAL DEVIATION OF THE HEAD TO THE RIGHT OR LEFT.

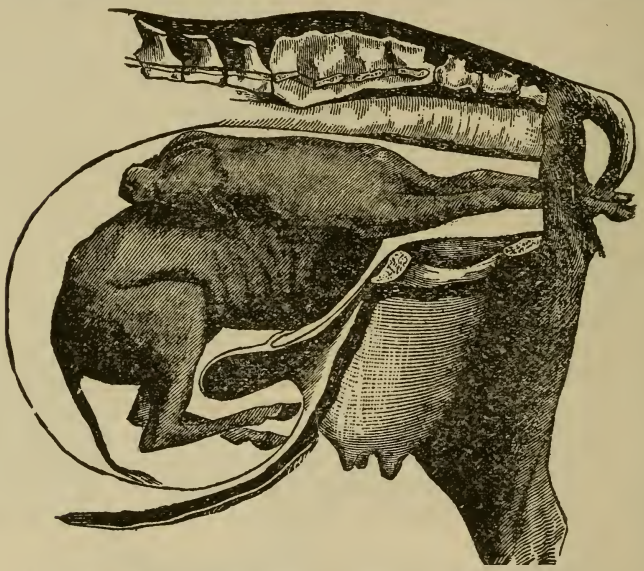
when the head is lying along the abdomen or down in the flank and beyond reach of the operator. If the head can be felt by the hand, you should catch hold of the cheeks, by putting your hand into its mouth, and raise it into position. Failing in this fasten a rope around the lower jaw, then secure the legs with ropes and push the fœtus back into the womb. Then have an assistant pull on the rope attached to the jaw while the operator pushes inward on the neck just at the bend. The

head will readily be brought into the vaginal passage. Then draw up the feet and complete delivery. In case the feet present and the head cannot be reached by the operator, first fasten small ropes to the fore fetlocks, Then return the legs to the womb, pressing them to the opposite side from that to which the head is bent. Then, if the head is turned to the right, press against the left shoulder, and *vice versa* if it is turned to the left. With the hand or a crotch you can fasten a rope around the neck. Pass the rope along the neck as near the head as possible, then twist the rope until it presses deeply into the flesh of the neck, care being taken not to entangle the membranes in the rope. Then press inward on the shoulder and draw outwards and sideways on the neck and you will draw the head backward toward the natural position. Continue in this until you can reach the head, when you should fasten the rope to the head or lower jaw after which you can easily bring it into position. Then draw up the feet and complete the delivery. Sometimes an advantage is gained by securing the legs with cords, then placing a crotch against the neck or upper part of the chest and forcing the fœtus back into the womb while the operator fastens a blunt hook into the eye or mouth of the fœtus and uses outward traction on the head. But if the mouth can be reached I would prefer catching the hold there. If the fœtus is dead and the membranes are dry use copious injections of warm water. Perseverance and good judgment will nearly always effect a delivery in this position. Let the knife for dissecting purposes be the very last resort.

DEVIATION OF THE HEAD UPWARD AND BACKWARD.

In this position the head will be found more or less extended along the back or slightly deviated to one side with the inferior border of the lower jaw resting against the mother's back. In this position the head may be forced through the womb into the rectum, causing rupture of the perineum, and the fœtus may be delivered in that way. On examination the fore-feet will first be felt, possibly well advanced into the vagina, and beyond them at the inlet the hand meets the chest and, above, the lower part of the neck which, if traced backward, will lead to the head more or less back on the withers and loins or

very slightly inclined to one side, the lower jaw facing the back of the mother. In order to place the head in a natural position it is necessary to force the fœtus back within the womb by pressing the chest downward. Should the head not drop down into the natural position, introduce the hand and seize the head by the mouth or lower jaw, and pull it down ward, slightly sideward and outward into the natural passage. If this cannot be done with the hand, place a small rope



DEVIATION OF THE HEAD UPWARD AND DOWNWABD.

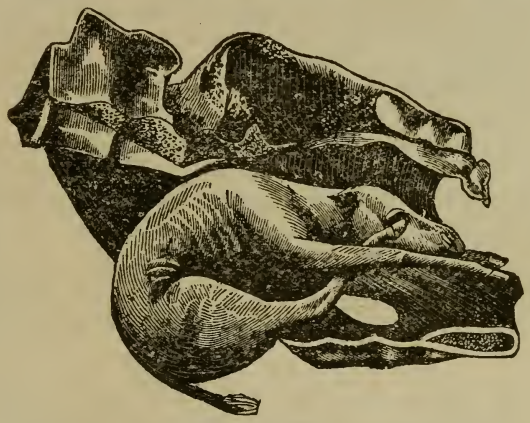
around the lower jaw and have an assistant pull while the operator guides the head with his hand until it is brought into the natural passage, when delivery will be completed easily. This is not a difficult position and can be rectified with ease and safety.

HIND-LEG DEVIATION,—ANTERIOR PRESENTATION.

In this position the operator may consider the case a natural presentation, which it is as far as the head and fore-

feet are concerned. Birth may be proceeding favorably, the fore-legs, head and body being normal and in a natural position protruding well beyond the outlet; when, suddenly, the foetus becomes locked or wedged within the passage, notwithstanding the mother increases her efforts at straining; and powerful traction upon the foetus fails to bring it beyond a certain point.

The operator should pass his hand underneath the abdomen of the foetus, along the genital passage, until he reaches the



HIND LIMB DEVIATION,—ANTERIOR PRESENTATION.

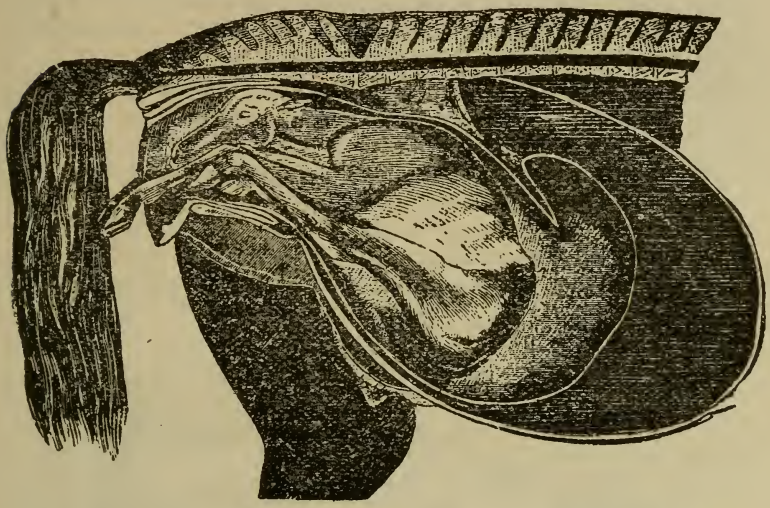
inlet, where he will find the obstruction. Here he may find the thighs of the foetus turned outward from its flanks, forming too broad a surface to pass through the genital canal. Sometimes he will find the hind legs flexed forward underneath the belly of the foetus and the feet or fetlocks caught under the brim of the pelvis at the inlet, so that to deliver by force would cause the hind-legs of the foetus to force their way through the tissues into the abdominal cavity of the mother, before delivery could be completed; and this might cause the death of both mother and offspring. A sate delivery can be effected only by the proper adjustment of the hind legs. This is all the more difficult when the foetus is well advanced in the passage and much traction has been employed. If, upon examination, the thighs are extended outward from the flanks of the foetus, it should be forced back within the womb and

the limbs drawn as closely together as possible with the hand. If this cannot be done, you may take a half inch rope, well greased, and fasten it around the body of the foetus with a running noose. Then the operator should work the rope just beyond the rump of the foetus or midway between the rump and the hocks. He must hold it there while an assistant draws tightly on the rope and forces the thighs together. The delivery can then be completed. If, however, the foetus can not be forced back into the womb to adjust the thighs, cut it off close up to the mother; then force the remainder back within the womb and deliver the hind feet first. But, if upon examination, the hind feet or fetlocks are found to be canght below the brim of the pelvis at the inlet, you should pass your hand between the belly of the foetus and the gential canal, until you come in contact with the feet or fetlocks. Then pass the hand with the palmar surface against the feet or fetlocks and extend it backward and inward as far as the arm will reach, when traction may be applied to the foetus and delivery completed.

DEVIATION OF THE HIND-LEGS INTO THE GENITAL CANAL—THE ANTERIOR PART OF THE BODY PRESENTING.

In this position we have a serions case to deal with. Generally the principal object is to save the life of the mother. The foetus generally is dead or in a dying condition before help is thought necessary to complete the delivery. Outward appearances may reveal nothing but a natural presentation,—the fore-feet and head being presented and sometimes so well advanced that part of the chest will be presented to view beyond the outlet, when progress ceases, notwithstanding the violent efforts of the mother are increased and forcible traction has been used. The operator now has great difficulty to ascertain the cause of the delay, the difficulty depending upon the size of the foetus and the amount of space in the genital conal occupied by it. The hand should be introduced to ascertain the cause of delay, which may be very difficult. When the feet are found they should be examined to make certain they are the hind ones. Sometimes the hind legs are well advanced in the passage, even as far as the hocks; but

this depends greatly upon the size of the foetus and the capacity of the mother. It is impossible to extract the foetus until this position is rectified, no matter what amount of force may be used; and violent force is certain to injure the mother. It is, therefore, necessary to ascertain the exact state of affairs



DEVIATION OF THE HIND LIMBS INTO THE GENITAL PASSAGE, THE ANTERIOR PART OF THE BODY PRESENTING.

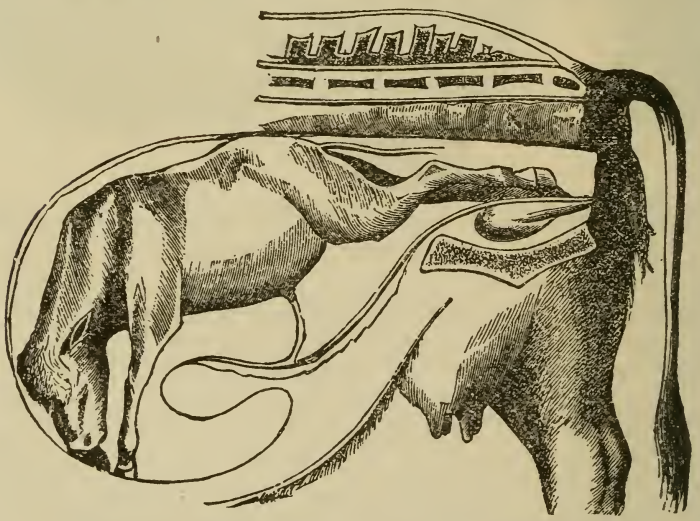
before using any force. As to saving the life of the foetus, should it be living, your decision generally must be unfavorable. In a great majority of cases the young animal, if not already dead, must be sacrificed to save the life of the mother.

If attention is given to the mother before the foetus has advanced far into the passage and the hind feet are found mingled with the fore feet, the operator will have little difficulty in pushing them back to the lower border of the pelvis. Then push them downward and inward and immediately after grasp the fore feet and head and hasten the delivery, which can be done successfully. Or the operator may hold the hind feet back while an assistant extracts the foetus. But if the foetus is well advanced, the fore legs, head and chest being beyond the outlet, you may try and force it back within the

womb until you can reach the hind feet. Then, if possible, push them back within the womb, either with the hand or with a crotch. Then, the head and fore legs being in good position, delivery can be effected easily. When the foetus has advanced so far and is very large, it is very seldom possible to force it back into the womb or even to introduce the hand beside it. The only recourse left then is to cut the foetus off close up to the mother; then force the remainder back within the womb, turn it around and deliver the hind feet first.

POSTERIOR PRESENTATION.

In posterior presentation, as in anterior presentation, the foetus may assume several positions, in only one of which a spontaneous and natural delivery can result. This is when the back of the foetus is next to the back of the mother, the abdomen next to the lower part of the pelvis and the thighs



POSTERIOR PRESENTATION, OR HIND FEET PRESENTATION.

occupying the horizontal diameter of the genital canal, the hind legs being fully extended outward and entering the inlet, first gradually dilating the mouth of the womb. Birth in this position without assistance is more frequent with cows than

with mares and the calves are generally alive. With the mare parturition is more prolonged and laborious, and the foal quickly dies after rupture of the membranes, or is suffocated immediately after birth for want of attention. Colts that are foaled in this position should be raised by the hind legs until the head is clear off from the ground, to allow the escape of any fluid that may be in the wind-pipe. I have seen as much as a pint escape and the little animal begin to breathe and do well. When colts are foaled with an anterior presentation the head and neck hang down so that if any fluids have accumulated in the wind-pipe they escape spontaneously. With the posterior position it is just the reverse, hence the necessity of raising the hind quarters and allowing the fluid to escape. The foal sometimes perishes quickly after rupture of the membranes. It is therefore necessary, in a posterior presentation when everything is favorable, to hasten the delivery to save the life of the colt.

In the posterior reversed position, when the hind feet are presented with the foetus lying on its back within the mother, its belly against the back of the mother and its back upon the lower bone of the pelvis, there is danger ahead and trouble to be anticipated. As a consequence of this reversed position, the hind legs (which enter the passage first) are directed upward and outward, and are the parts first met by the hand in making an examination. The operator can make no mistake if he notices whether the back or front of the hind leg is uppermost. This can be told easily from the shape of the feet or the position of the hocks, the point of the latter being downward, and the bend upward in the same direction as the wall of the hoof. Whereas, the bend of the *knee* is in the same direction as the sole of the foot. The obstacle to birth lies in the buttocks resting against the lower border of the pelvis, whilst the legs are extended upward towards the mother's back and, to a certain extent, held rigid. There is danger of lacerating the perineum; or the feet may be pushed through into the rectum, causing rupture of the perineum. Besides this, the body of the foetus itself forms a curve exactly opposite to that of the genital canal, so that it cannot easily accommodate itself to the bony canal through which it must pass. From these circumstances the position not only is unfa-

vorable to birth, but must be remedied or serious accidents may follow.

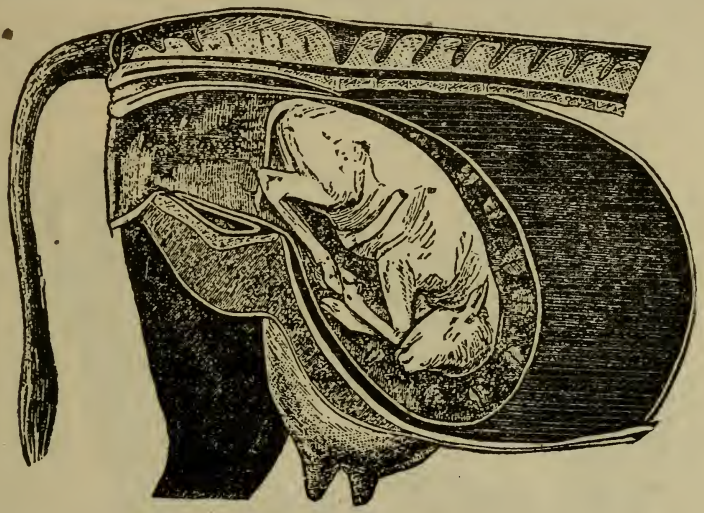
When the foetus is found in this position the operator must take great care in conducting the feet through the genital canal, to prevent lacerations of the perineum. Sometimes, in order to bring the feet beyond the outlet, it is necessary to pass the hand and raise the hocks above the brim of the pelvis. As soon as the feet appear beyond the outlet they should be secured with ropes, and, while an assistant seizes the legs and attempts to turn the foetus on its belly, the operator should pass his hand under its rump and assist in turning it over so that its back rests against the mother's back. When this position is gained, extract the foetus,—if necessary, by forcible traction. If the foetus is small, or if the rump has passed into the genital passage, it should be drawn far enough into the passage to have the rump beyond the outlet; then twist it half way round, or until its back is uppermost, and complete the delivery. If the foetus be a colt delivery must be completed within half an hour; otherwise it is likely to die before entirely born. It it be a calf it may live for several hours and be born alive.

HOCK PRESENTATION.

This presentation is liable to happen when there is a posterior presentation and the womb contractions force the foetus toward the inlet before the hind legs are completely extended. Consequently, the back part of the legs below the hocks come in contact with the brim of the pelvis. The croup, being above naturally forces the legs into a cramped position. The labor pains continuing, the croup has a tendency to descend and, with the hocks, to enter the pelvic inlet. The legs now being thoroughly flexed, the croup pressing upon them they become jammed tightly in the inlet, forming too large a mass to advance further. Therefore labor is suspended and the animal becomes exhausted by continuous straining.

On making an examination in hock presentation, the point of the hock is always the first part encountered, but it may be found at different points. Sometimes it is well advanced in the inlet, the croup and body of the foetus being still within the womb. In other cases the body and croup are in the inlet and thoroughly wedged in the passage. As a rule, if the mother

has run the full period of gestation, birth cannot take place until the deviation has been restified; and until this has been done, a forcible attempt at delivery is likely to take the life of the mother. Therefore it is necessary to place the hind legs in a favorable position, by extending them in the genital passage. This is more easily done with the calf than with the colt, owing to the shortness of the legs of the former. If the offspring be very small and the mother large and roomy in



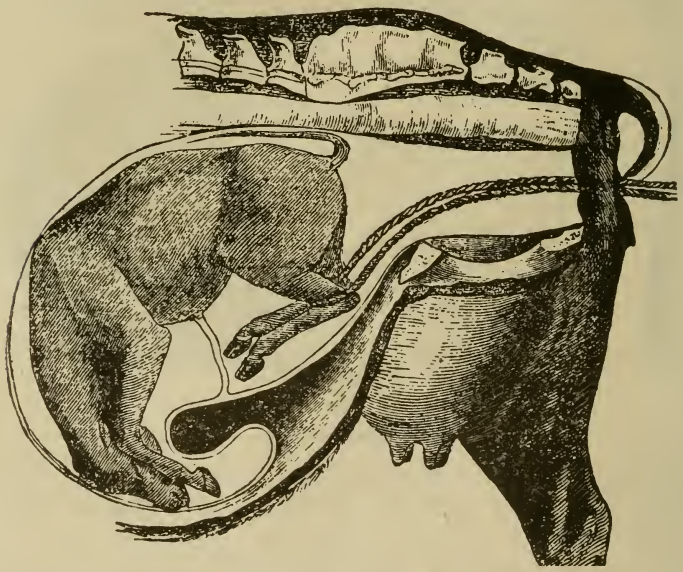
HOCK PRESENTATION.

the genital canal the foetus may be delivered in this position, by extending its legs forward underneath its abdomen. But this would be a very exceptional case.

The best mode of completing delivery is so to adjust the foetus that the hind legs are completely extended outward This is quite easily accomplished, if an examination be made before the foetus has entered the pelvic inlet, or, at the most, the points of the hocks and raising them upward, at the same time pressing inward, the operator can draw the feet into the pelvic inlet. Or, if the operator has secured the feet by ropes previous to handling the hocks, as he raises and forces them inward an assistant can pull on the ropes and bring the feet outward into the genital canal, and can then complete the

birth with ease. But at a later period, when labor is more advanced and the croup is well advanced or wedged in the inlet along with the hocks, the case is more troublesome. First, fasten a rope around each hock separately; then apply pressure to the croup, forcing it inward and upward until you force it within the womb, or far enough inward to secure the feet with ropes. Then take hold of the hocks and press upward and inward, when an assistant may draw upward and outward on the ropes and bring the feet into position.

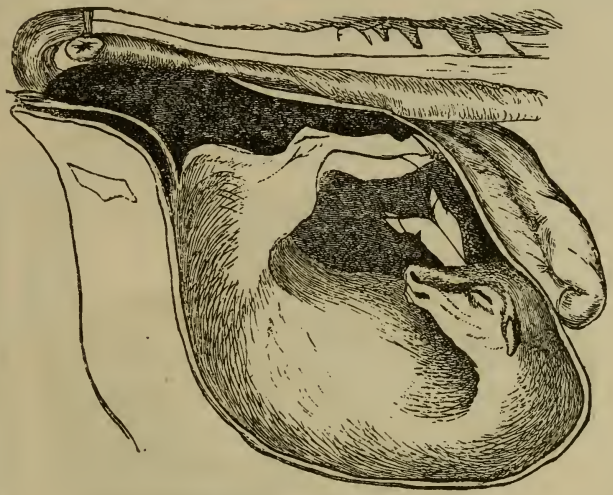
If there is much trouble in forcing the foetus back and it is known to be dead, or if it must be sacrificed to save the



HOCK PRESENTATION—HOCKS CORDED.

mother, ropes may be fastened to the hind legs and the hocks drawn as near the outlet as possible. Then amputate the legs at the hocks, remove the detached parts and the remainder is easily brought into position for delivery. If the mother persists in lying you may elevate her hind quarters by packing straw under her. If thought necessary place the hobbles on the hind feet, then place a rope over a high beam and draw

up the hind parts. This, sometimes, will greatly lessen the danger to the operator and assist him in extracting the foetus.

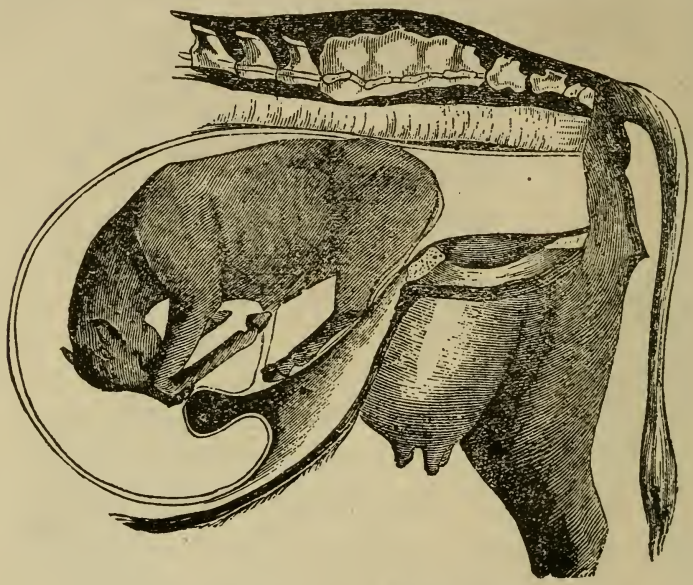


HOCK PRESENTATION—REVERSED POSITION.

THIGH AND CROUP PRESENTATION.

The cause of this mal-position is the same as that operating in the hock presentation. It occurs frequently with both mares and cows. When the thigh and croup are presented and the legs are flexed slightly forward the mass is too large to enter the pelvic inlet. But, as labor progresses, the croup is forced into the pelvic inlet, while the thighs are forced downward and the legs forward until the latter are pressed up against the abdomen. In this position birth is possible; but the fœtus must be very small and the pelvis of the mother large and well formed. In this position, upon examination, the hand first encounters the tail and buttocks of the fœtus, then the thighs, and possibly the hocks. But if labor is somewhat advanced the legs will be pressed up along the abdomen, when the hocks will be beyond the reach. The croup and haunch may have passed some distance into the pelvic inlet, yet it is very unusual for any part of the fœtus, except the tail, to be discernable externally, no matter how long labor may have

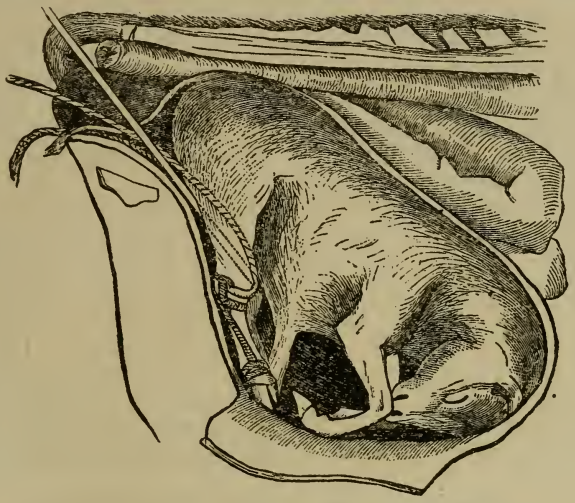
been progressing. This mal-position is the most difficult encountered in veterinary obstetrics. Sometimes the mother perishes without being delivered. Though a living calf sometimes is delivered in this position, a living foal is very rarely



THIGH AND CROUP PRESENTATION.

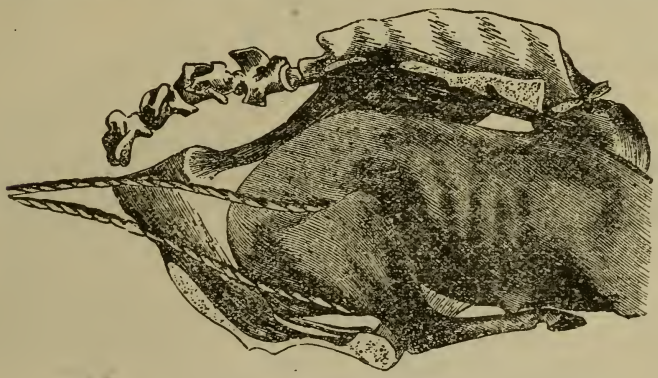
obtained; and only to often the mare dies after the foal has been taken away. The chance of saving either mother or offspring depends greatly upon the length of time the mother has been in labor, and the amount of injury or irritation sustained by the genital organs through improper handling. The chances are lessened if it be the first foal or calf, or if the fœtus be unusually large. To complete birth it is necessary to extend the limbs of the fœtus backward, as in ordinary breech presentation, the hind feet first so that the mother's efforts with slight assistance from the operator will effect a delivery. This will prove a difficult task. Though, in some instances, where labor has not advanced very far and the fœtus is still in the uterine cavity and can be moved around so that the feet can be reached and brought into the genital pass-

age, it is not very difficult. When labor has progressed far enough to force the croup into the pelvic inlet delivery will be



THIGH AND CROUP PRESENTATION—THE HOCK CORDED.

completed only by hard work and perseverence. If possible place a small rope around each leg separately, as low down as



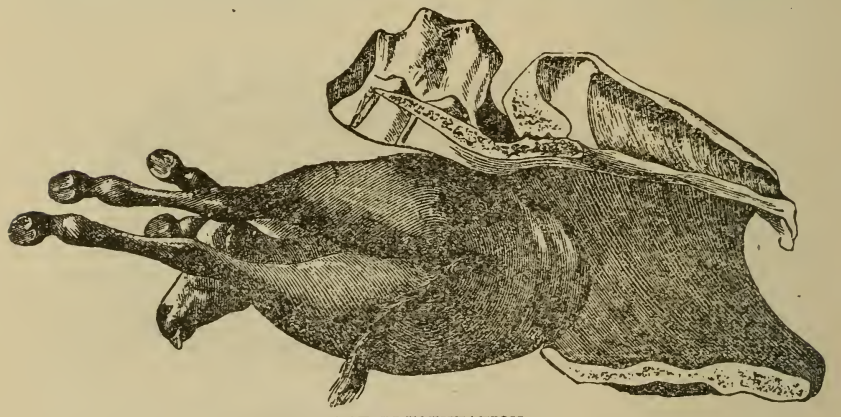
THIGH AND CROUP PRSENTATION—THE THIGHS CORDED.

the hock. Then take a repeller, or use the hand, placing it against the croup, and force it inward, the assistant drawing

upward and outward upon the hock. Continue in this way until you have a hock presentation. Then fasten ropes to the fetlocks, and, while the operator seizes the hocks and presses upward and inward, the assistant may draw upward and outward on the fetlocks, until they are brought into the passage, when the delivery may be completed. But if the croup and thighs are completely wedged in the genital passage and cannot be moved, either inward or outward, which sometimes is the case, no recourse but embryotomy is left. This is a very tedious manner of completing delivery. Take a guarded knife and cut through the skin and muscles until you come to the hip joint. Then detach that limb and remove the other in the same manner, after which you can insert hooks in the cavity of the hip-joint and extract. Or, place a rope completely around the body of the fœtus and extract. Or, sever the muscles from the bones of the haunch as much as possible, then fasten a hook into the bones and extract them. After you have severed the haunch bones remove the bowels. Then fasten a rope to the remaining skin and complete delivery.

TRANSVERSE PRESENTATION.

The foetus is in a transverse position when, upon examina-



TRANSVERSE PRESENTATION.

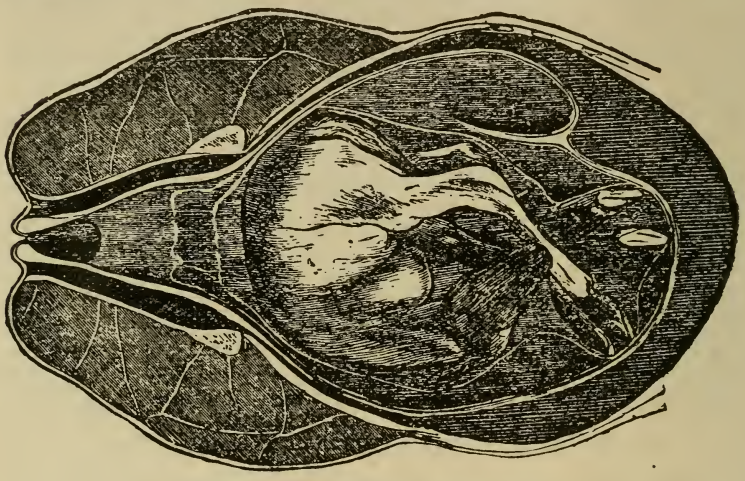
tion, the hand of the operator first encounters the shoulders, withers, sides, flanks, haunches, loins, back, breast, belly or

all of the limbs collected together. The possibility of the foetus assuming a transverse position within the womb is by some strongly disputed, but entirely without reason, because the womb is a soft, yielding membraneous sack, capable of assuming almost any position; so it readily appears that its transverse diameter may be increased at the expense of its length. Though transverse presentation sometimes is observed, it is not nearly so common as an anterior or poste rior presentation. Still it is quite as necessary that the operator should understand something of this presentation as with it birth is impossible when unassisted. No matter whether the foetus presents in the transeverse vertical or transverse horizontal position, version must be accomplished in order to change it to either an anterior or posterior presentation. For in one of these ways only can the foetus be brought into the pelvic inlet and delivery be effected. This presentation occurs more frequently in the mare than in the cow, perhaps, owing to the stronger contractions of the womb of the former not allowing proper adjustment of the foetus, should it not be in a position exactly favorable at the commencement of labor.

SHOULDER AND LOIN PRESENTATION.

When labor has continued for some time with little or no progress, and, upon examination, the hand of the operator comes in contract with the shoulder and loins, he knows that he has to deal with a transverse presentation. If labor has lasted some time, the straining has been energetic and the waters have escaped, it sometimes is a difficult matter to decide what part of the foetus the hand encounters first. There is first felt a more or less rounded surface that has no special characteristic by which it may be recognized. The hand should then be introduced farther into the womb and search should be made for some part of the foetus that can be recognized. Then study the position of the young creature in the womb. The presentation having been recognized, the position must be determined by ascertaining the direction in which the head lies. With the foal this is accomplished by feeling for the mane and tracing it as far as the arm can reach. It may lie in the right or left flank of the mother, or up along her back, or down toward the floor of her belly, the legs assuming different positions in a direction opposite to the head; although

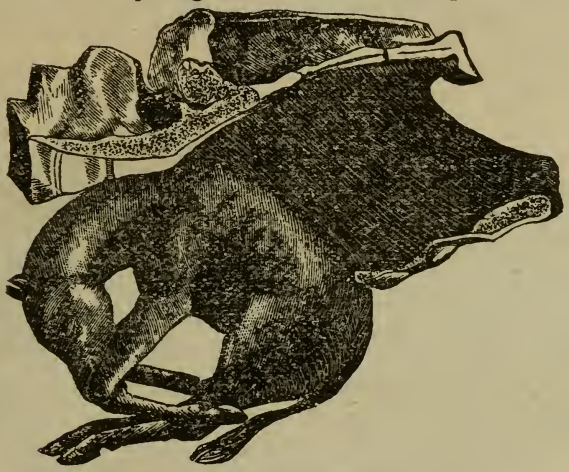
sometimes one leg is found crossed over the neck. To learn the exact position is absolutely necessary, before venturing upon any attempt at extraction, as in nearly every case, the presentation is a difficult one and requires all the skill and



SHOULDER AND LOIN PRESENTATION.

judgment of the operator to rectify it. But if labor has not continued any length of time before the operator discovers the presentation, and if the membranes are soft and yielding from the natural fluids, the position, generally, is easily converted into an anterior or posterior presentation and a living foetus is delivered. If labor has continued for some time and the patient is a mare, you may depend upon it the foal will be dead. But with a cow a living calf may be delivered—the tenacity of life and the power of endurance are wonderful. The principal object is to convert the transeverse presentation into either an anterior or a posterior presentation, for only in this way can delivery be effected. If the foetus lies or can be moved so that the head and fore legs are most convenient and can with the least difficulty be brought into the pelvic inlet, the position should be converted into an anterior presentation. If the hind legs are most accessible and can be brought into the inlet with less difficulty, convert the position into a posterior presentation. But to do either is, generally, a difficult

task, as the presentation offers nothing to take hold of advantageously, or to which ropes could be attached. If labor has progressed for some time and the membranes are dry, before attempting to turn the foetus, it is a good treatment to inject warm water into the womb, to moisten the membranes, which will greatly aid the operator in his efforts at version. The foetus must not be pushed directly forward into the womb, but rather obliquely and in a direction opposite to that of the parts we wish to bring into the inlet. If the mother be lying down, the operator will find it greatly to his advantage to raise her hind quarters very high. He should be persistent in his

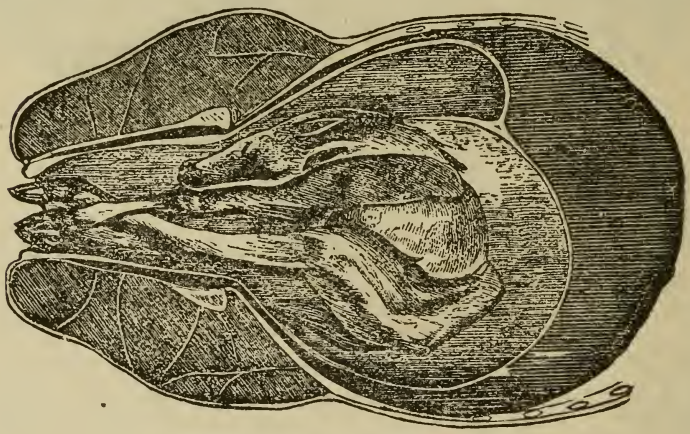


SHOULDER AND LOIN PRESENTATION.

work, use frequent injections of warm water, and, in the great majority of cases, the foetus will glide around the inner surface of the womb until a convenient part presents itself. Then the fore legs and head, if they are the parts sought, or the hind legs, are brought into the genital canal by the hand or by ropes, when slight traction will complete the delivery. When all these maneuvers have failed embryotomy should be performed in such manner as the operator deems most advantageous. At the best it will be a difficult, tedious and laborious task, seldom attended with satisfactory results. The mother generally perishes, either during the operation or shortly afterward.

BREAST AMD ABDOMINAL PRESENTATION.

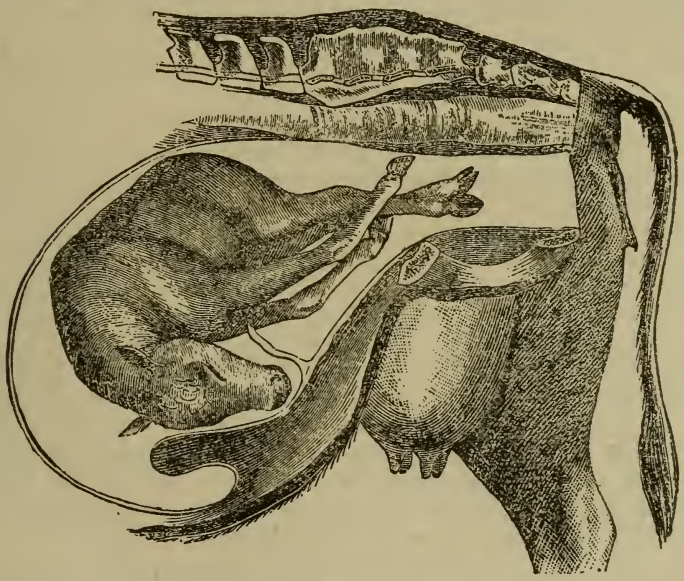
This presentation is quite common in both mares and cows, but more frequently occurs in the former. Generally the fœtus is lying on its side with its legs flexed, or extended, or presented at the inlet, or engaged in the passage. There is no difficulty in discovering and recognizing this position. As the operator passes the hand to explore the parts it first encounters the feet—usually all four of them. They may be within the womb, or one or more of them engaged in the passage. In the majority of cases either the hind parts or fore quarters are near the passage, a condition recognized by the legs of that part being further advanced than those ot the other. The position must now be ascertained, which can be done readily if the head can be felt. But this, generally, is beyond reach



BREAST AND ABDOMANAL PRESENTATION.

and the position can be determined only by a careful examination of the limbs. In this we must distinguish between the hind legs and fore legs as these alone can show the direction ot the head. To do this the operator should remember that the hind leg flexes in the direction of the wall of the foot, whereas the knee flexes in the direction of the sole of the foot. The hock can also be recognized by its flatness. It must be remembered that, in this presentation the fore legs and hind legs are cross each other when engaged in the genital

passage. The hind legs, crossing the fore legs, are pointing toward the anterior part of the body of the fœtus; while the fore legs, crossing the hind legs, point toward the posterior part of the fœtus. This is not a very serious presentation, as a rule. The gravity of the case depends somewhat upon the length of time labor has continued. As it is impossible for birth to occur spontaneously while the fœtus is in this position, if the mother has not received the necessary aid for some time after the commencement of labor, her continued straining may



BREAST AND ABDOMINAL PRESENTATION.

not only cause the death of the colt but the mother's death from prostration. When the legs have been distinguished, fasten ropes around the ones you wish to extract first. Generally the operator will find it most advantageous to convert the position into a posterior presentation and deliver the hind feet first. If only one hind foot and one fore foot are engaged in the passage, fasten a rope around the one hind foot and search for the other one; secure it and bring it into the passage. Then return the fore leg to the womb, as far in as possi-

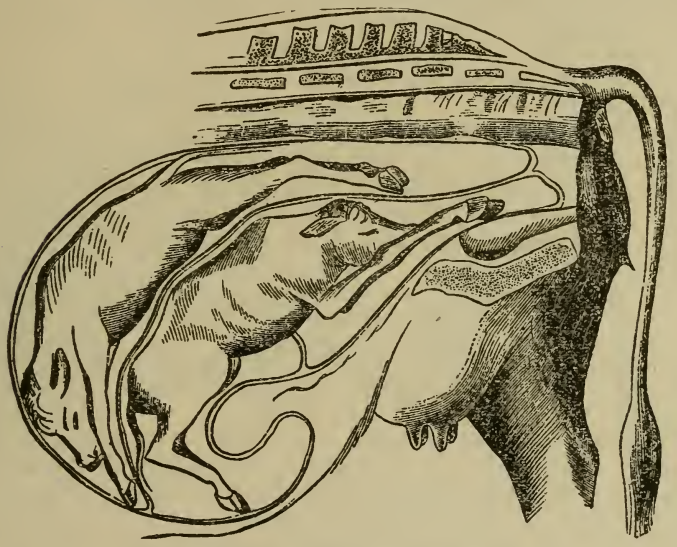
ble, apply traction and deliver. But if all four legs are engaged in the passage, fasten ropes to the hind feet; then return the fore feet as far as possible within the womb. Sometimes this is more easily and more advantageously accomplished by flexing the forelegs at the knee until the foot rests against the elbow; then force it within the womb in a downward direction, while the assistant draws upon the hind feet. The fœtus will straighten out generally and birth will be completed. Even if the head be engaged along with all four legs in the passage, I would recommend returning it to the womb in a downward direction along with the fore legs, and that delivery be made with the hind feet first. When the fœtus is partially delivered, say the hind legs, croup and hips are without or beyond the outlet, the operator should pass his hand between the belly of the fœtus and the floor of the genital canal, to ascertain whether the fore legs have become cramped or fastened within the inlet too soon. If so, straighten them by pushing them inward, for if not straightened serious results might follow. In delivering the fœtus with a posterior presentation—that is the hind feet first—the back of the foetus should be against the back of the mother.

But in a breast and abdominal presentation, it it is found impossible to force the foetus back into the womb and the foetus be dead, there should be no hesitation about resorting to embryotomy. The best way to commence is to cut off the fore legs at the knees or elbows and remove them; the lower part of the legs being removed, the remainder of the foetus can be readily pushed back into the womb, and by applying traction to the hind legs, delivery can be effected.

TWIN FŒTUS—IN DIFFERENT PRESENTATIONS.

With mares and cows it is not an uncommon occurrence for them to bring forth twins, though it is rarely, indeed, that assistance is needed to complete delivery. Usually, when the mother is carrying twins, either they are expelled before the full period of gestation is completed, or each is much smaller than if she were carrying only one. Indeed, birth usually is much easier with a twin pregnancy than with only one. When the most advanced foetus is expelled a variable period elapses before the second birth. During the interval the mother gen-

erally is uneasy and pays little or no attention to the one already born; but manifests a peculiar anxiety, which is a good indication that delivery is not complete. But when the second foetus is born the mother generally turns her attention to her offspring. This is the general order of twin births. But it is not always so fortunate. In some cases, after the first one is born, a long interval occurs before the birth of the second one, which is usually fatal to its existence. This suspension of labor in twin-birth is generally due to a mal-position of the foetus. Difficult parturition from this cause



TWIN FŒTUS—IN DIFFERENT PRESENTATIONS.

also happens when the twins are about equally distant from the mouth of the womb and are presented at the inlet together. Of course they cannot pass through the canal together, hence the difficulty. Upon examination the operator will experience great difficulty in determining the positions of the two foetuses. This can be done only by careful examination, and then the operator will find himself somewhat embarrassed. For example, the fore feet of one foetus may be presented with the head of the other; or the head and one fore foot may present

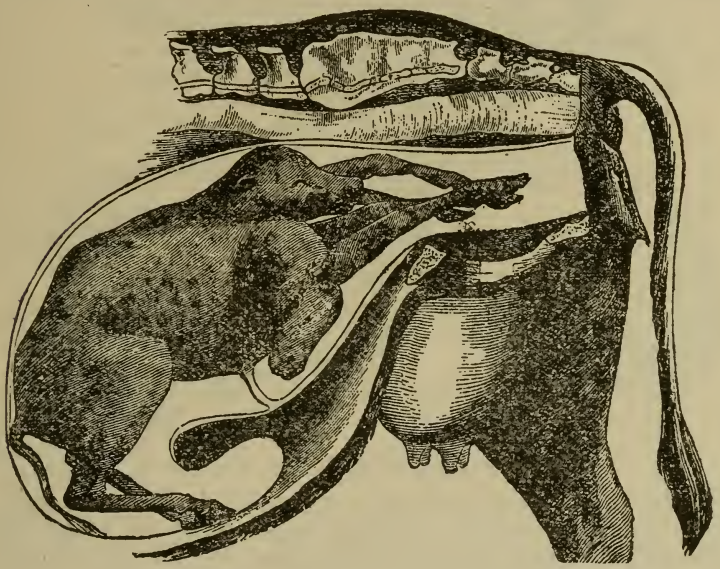
with one fore foot of the other; or one hind foot of each foetus may present together; or a fore foot of one with the hind foot of the other, etc. In some instances the legs of the twins are so interlaced that they are separated only with the greatest difficulty. One thing is certain, only one can be delivered at a time. Therefore they must be separated and one pushed back into the womb while the other is being delivered. When the one is born, the other, if in a wrong position, must be straightened and removed. This is quite easily written, but not so easily performed. If assistance is not afforded before both foetuses become wedged into the pelvic inlet the operator will experience great trouble in adjusting them. But if distinguished before entering the inlet, but little trouble need be anticipated. Select the one most favorably situated, fasten ropes to the head and fore legs or to the hind legs, as the case may be, and arrange them in a direction proper for delivery. Then let an assistant draw the foetus toward the outlet while the operator pushes the other back within the womb. After delivering the first one, search for the other, which probably will be in a mal-position, requiring adjustment before it can be born.

DOUBLE-HEADED MONSTROSITIES.

Very seldom, indeed, do we witness double-headed monstrosities with mares or cows. In the former I have neither seen nor read of any; but in the cow I have seen one and read of others. But they are very rare indeed. Sometimes these monstrosities are born alive and live a considerable time. The one that I saw was living at three years of age, to all appearance healthy and a good feeder. It was placed on exhibition. She only used one mouth while feeding. The other mouth was well formed and had a full set of teeth, but she had little control of the lower jaw. Though, if the mouth was opened with a little assistance, it would close spontaneously. Both heads were well formed, uniting at the neck, both mouths emptying into the one œsophagus.

The existence of this mal-formation renders birth more or less difficult and sometimes impossible, according to the size of the heads. But sometimes birth occurs without assistance and with little difficulty. An examination will reveal the condition, when the operator will adopt the measure necessary to

complete the delivery. If the mother is large and the genital canal well formed, forcible traction may complete the delivery. But if, in the judgment of the operator, this will not do, embryotomy must be resorted to. Cutting off one or both of the heads may be necessary before delivery can be completed. If the heads are united closely, split them with a chisel and then remove them; or, in such cases, bone forceps may be used. If it be a double head and neck, cut off the neck, as low down



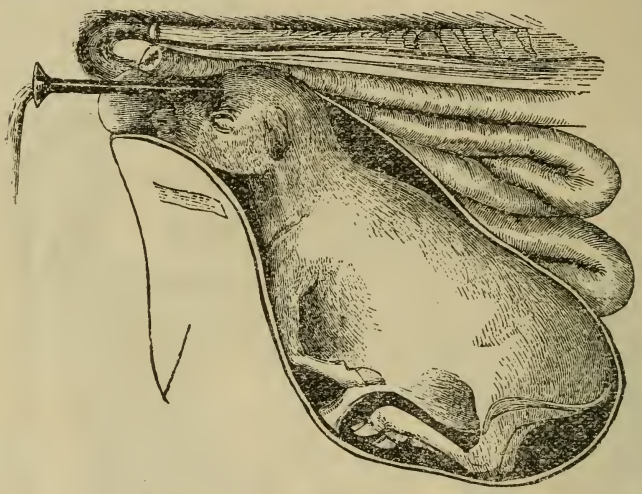
DOUBLE HEADED MONSTROSITIES.

as possible, and remove it first; then remove the balance There are several other forms of monstrosities but, as they so seldom occur, a description here is quite unnecessary. Suffice it to say that, if it be impossible to deliver them by moderate traction, amputate such parts as cause the obstruction and deliver.

HYDROCEPHALUS, OR WATER ON THE BRAIN.

This anomaly is found in colts and calves, both. The enormous size of the head is the obstacle to a natural delivery.

If with an anterior presentation birth will be delayed, and, on making an examination, the operator will soon discover the deformity. But, if with posterior presentation the operator discovers this deformity, he should endeavor to change the position to an anterior presentation, and, after bringing the nose into the inlet, he should plunge a knife through the head, making a free incision to allow the water to escape. After



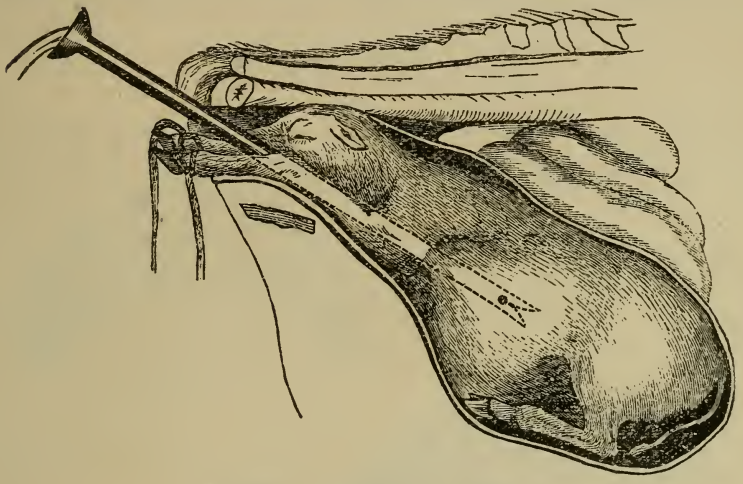
HYDROCEPHALUS, OR WATER ON THE BRAIN.

which, on applying traction, the tissues gradually flatten down and birth is completed. But if it be presented hind feet first and birth is complete with the exception of the head, which is too large to pass through the genital canal and prevents delivery, the operator should pass the hand along the neck and examine the head. If hydrocephalus is recognized he should open the head with a knife or trocar and canula and allow the fluid to escape, after which the tissues will flatten down and traction will complete the delivery.

ASCITES, OR ABDOMINAL DROPSY.

With this disease the abdomen of the fœtus will be swollen to such an extent that it cannot enter the genital passage, though the head and fore feet may be presented in a natural

position and well advanced in the canal. On examination, if the operator cannot pass the hand between the head and the walls of the passage to ascertain the cause of the obstruction, he should first secure the head and fore feet with ropes, then force them back into the womb. After that he will have no difficulty in ascertaining the trouble if dropsy is the cause. He



ASCITES, OR ABDOMINAL DROPSY.

should then plunge a knife into the abdomen of the fœtus, making a large incision to allow the fluid to escape into the womb, after which delivery can be completed. But if he cannot return the head to the womb, or does not think best to do so, he must either plunge a knife into the abdomen of the fœtus and allow the fluid to escape into the womb, or use a trocar and canula, plunging it into the abdomen and allowing the fluid to escape externally. Afterwards moderate traction will complete the delivery.

Appearance of Horses' Teeth

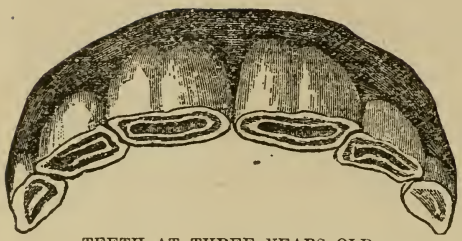
—AT—

DIFFERENT AGES.

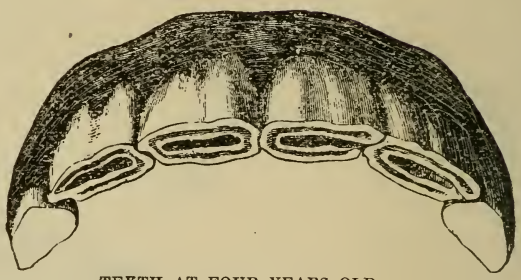
TEETH OF A FOAL.

TEETH AT ONE YEAR OLD.

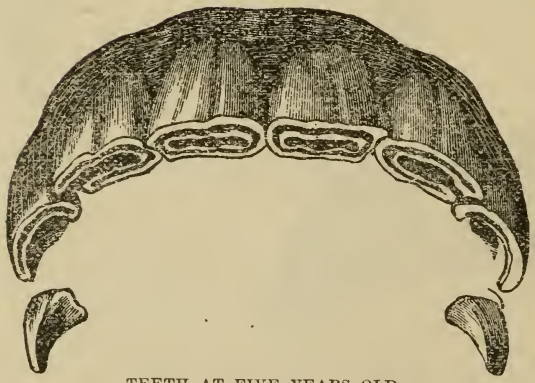
TEETH AT TWO YEARS OLD.



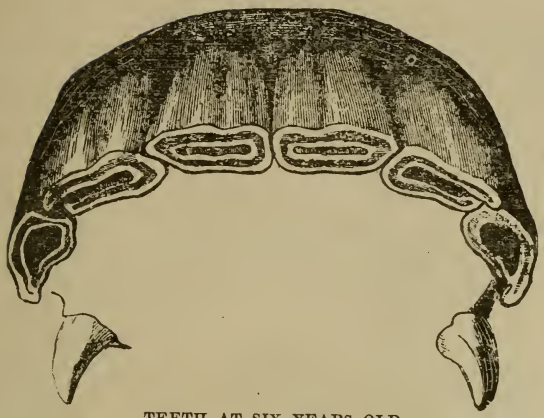
TEETH AT THREE YEARS OLD.



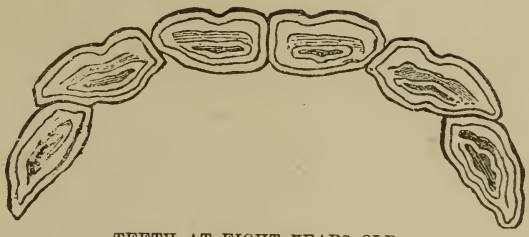
TEETH AT FOUR YEARS OLD.



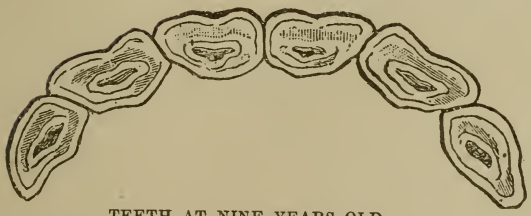
TEETH AT FIVE YEARS OLD.



TEETH AT SIX YEARS OLD.

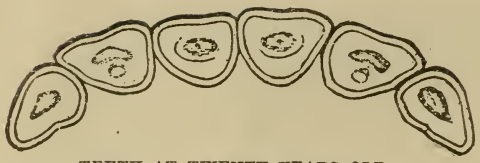


TEETH AT EIGHT YEARS OLD.



TEETH AT NINE YEARS OLD.

TEETH AT SIXTEEN YEARS OLD



TEETH AT TWENTY YEARS OLD

TEETH AT TWENTY-FOUR YEARS OLD.

TEETH AT THIRTY YEARS OLD.

DRUGS AND DOSES,

FOR

HORSES AND CATTLE.

NAME OF DRUG.	ACTION AND USE.	DOSE.	
		HORSES.	CATTLE.
Acetic Acid	Febrifuge and Caustic	1 dram	2 drams
Aconite Tincture	Sedative, Diaphoretic	20 to 40 dps	30 to 60 dps
Alcohol	Stimulant, Dieuretic, Narcotic	½ to 1 oz	1 to 2 ozs
Ale	Stimulant, Dieuretic, Narcotic	1 to 2 pints	2 to 4 pints
Aloes Barbadoes	Purgative	4 to 8 dr'ms	6 to 12 dr'm
Aloes Cape	Purgative	5 to 10 dr'm	7 to 14 dr'm
Alum	Astringent	2 to 3 dr'ms	3 to 4 dr'ms
Ammonia Liquid	Stimulant, Anti Spasmodic, Dieuretic	1 to 2 oz	2 to 4 oz
Ammonia Carbonate	Stimulant, Anti-Spasmodic, D'euretic	2 to 4 dr'ms	4 to 6 dr'ms
Aromatic Ammonia	Stimulant, Anti-Spasmodic, Dieuretic	1 to 2 oz	2 to 4 oz
Ammonia Muriate	Stimulant, Discutient, Alterative, Dieuretic	2 to 4 dr'ms	4 to 6 dr'ms
Ammonia Acetate Solution	Diaphoretic, Dieuretic, Stimulant, Febrifuge	2 to 3 oz	3 to 4 oz
Anise Seed	Stomachic Carminative	½ to 1 oz	1 to 2 oz
Antimony Tartarized	Sedative, Diaphoretic	1 to 2 dr'ms	2 to 4 dr'ms
Areca Nut	Vermifuge	1 ounce	1 ounce
Arnica Tincture	Stimulant, Dieuretic	1 dram	1 dram
Arsenic	Alterative, Nerve Tonic	5 to 10 grs	5 to 15 grs
Assafœtida	Stimulant, Carminative, Vermifuge	1 to 3 dr'ms	2 to 6 drams
Azedaroch	Vermifuge	½ to 1 ounce	1 ounce
Atropia	Anodyne, Anti-Spasmodic, Narcotic	½ grain	½ grain
Belladonna Extract	Anodyne, Anti Spasmodic, Narcotic	2 drams	2 to 3 dr'ms
Balsam of Peru	Stimulant, Anti-Spasmodic Expectorant	1 ounce	1½ ounces
Benzoin	Stimulant, Anti Spasmodic Expectorant	1 ounce	1½ ounces
Borax	Sedative, Uterine Stimul'nt	4 drams	7 drams
Bismuth Subnitrate	Soothes Irritation of Stomach and Bowels	2 drams	5 drams

NAME OF DRUG.	ACTION AND USE.	DOSE.	
		HORSES.	CATTLE.
Blackberry Root	Astringent	3 drams	4 drams
Boneset	Stimulant, Tonic, Dieuretic	7 drams	1 ounce
Bromide of Potass'm	Nerve Sedative	2 to 4 dr'ms	4 drams
Buchu	Stimulant, Dieuretic	4 drams	7 drams
Buckthorn Syrup	Physic for dog, ½ to 1 oz		
Calomel	Purgative	1 dram	½ dram
Camphor	Anti-Spasmodic	½ dram	2 to 4 drm's
Cantharides	Stimulant, Dieuretic	5 grains	5 to 10 grs
Cayenne Pepper	Stimulaut, Aromatic	3 drams	4 drams
Caraway Seeds	Stomachic	1 ounce	½ ounce
Cardamons	Stomachic	1 ounce	½ ounce
Carbolic Acid	Sedative, Anodyne, Astringent Antiseptic, Disinfectant	½ dram	1 dram
Castor Oil	Purgative	1 pint	1½ pints
Catechu	Astringent	2 to 5 dr'ms	2 to 8 dr'ms
Chamomile	Stimulant, Tonic	1 ounce	½ ounce
Chloral Hydrate	Sedative, Anti-Spasmodic	4 drams	4 drams
Chloroform	Stimulant	½ dram	½ dram
Cinchona	Tonic, Antiperiodic	½ ounce	½ ounce
Cinnamon	Stomachic	5 drams	7 drams
Cod Liver Oil	Tonic	5 ounces	7 ounces
Colchicum	Dieuretic, Sedative	½ dram	½ dram
Columbo	Bitter Tonic	5 drams	1 ounce
Copavia	Stimulant, Dieuretic, Expectorant	4 drams	4 drams
Copper Sulphate	Tonic, Astringent	1 dram	½ dram
Croton Oil	Purgative	15 to 20 dps	20 to 30 dps
Cream of Tartar	Dieuretic	1 ounce	½ ounce
Digitalis	Sedative, Dieuretic	20 grains	½ dram
Dover's Powder	Sedative, Diaphoretic	3 drams	4 drams
Ergot	Checks Bleeding from the Womb	1 ounce	1 ounce
Ether	Stimulant	1 to 2 oz	2 to 3 oz
Fennel Seeds	Stomachic	1 ounce	1 to 2 oz
Fern Male Shield Ext	Vermifuge	1 ounce	
Galls Oak	Astringent	4 to 6 dr'ms	1 to 2 oz
Gallic and Tannic Acid	Astringent	2 scruples	2 scruples
Gentian	Tonic	4 drams	6 drams
Ginger	Stimulant, Stomachic, Tonic	1 ounce	2 ounces
Glauber Salts	Purgative	1½ pounds	2 pounds
Hyoscymus Extract	Sedative, Anti-Spasmodic	2 drams	4 drams
Iodine	Alterative	15 grains	25 grains
Iodide of Potassium	Alterative, Dieuretic	1 dram	2 drams
Iron Peroxide	Tonic	2 drams	4 drams
Iron Sulphate	Tonic	3 drams	3 drams
Iron Tincture of Muriate	Tonic, Astringent	7 drams	1 ounce

NAME OF DRUG.	ACTION AND USE.	DOSE.	
		HORSES.	CATTLE.
Kino	Astringent	½ ounce	1 ounce
Laudanum	Narcotic, Sedative, Anodyne, Anti-Spasmodic	1 to 2 oz	1 to 2 oz
Lime Water	Antacid, Astringent	4 to 5 oz	4 to 8 oz
Lime Chloride	Relieves Bloating, Disinfectant	2 drams	3 drams
Linseed Oil	Laxative	1 to 2 pints	1 to 2 qu'ts
Lobelia	Sedative, Anti Spasmodic, Expectorant	2 drams	3 drams
Magnesia	Antacid, Antidote for Arsenic	1 to 2 oz	2 to 4 oz
Magnesia Sulphate—Epsom Salts	Laxative, Physic	1 pound	1 to 2 lbs
Muriatic Acid	Tonic, Astringent, Caustic	1 dram	2 drams
Myrrh	Stimulant, Tonic	3 drams	6 drams
Morphia Muriate	Narcotic, Sedative, Anti-Spasmodic, Anodyne	5 to 10 grs	10 to 15 grs
Nitric Acid	Tonic, Astringent, Caustic	1 dram	2 drams
Nux Vomica	Nerve Stimulant, Tonic	½ to 1 dram	1 dram
Oak Bark	Astringent	1 ounce	4 ounces
Olive Oil	Laxative	1 to 2 pints	2 to 3 pints
Opium	Narcotic, Sedative. Anti-Spasmodic, Anodyne.	½ to 2 drams	2 to 4 dr'ms
Peppermint Oil	Stomachic, Anti-Spasmodic	20 drops	20 to 30 dps
Pepper, White and Black	Stomachic, Stimulant	2 drams	3 drams
Podophyllin	Purgative, Sedative	1 to 2 drams	2 to 3 dr'ms
Pomegranate Root Bark	Vermifuge, Expels Worms	1 ounce	1 to 2 oz
Potassa Acetate	Antacid, Dieuretic, Diaphoretic	7 drams	1 ounce
Potassa Nitrate	Dieuretic, Febrifuge	6 to 8 dr'ms	1 ounce
Potassa Chlorate	Stimulant, Dieuretic, Refrigerant, Antiseptic	2 drams	2 drams
Potassa Bromide	Nerve Sedative	4 drams	4 drams
Prussic Acid	Sedative, Anti-Spasmodic	½ dram	½ dram
Pumpkin Seeds	Vermifuge, Tænifuge, Dog, ½ ounce		
Quinine Sulph	Bitter Tonic	30 grains	30 grains
Rhubarb	Laxative, Tonic	1 ounce	2 ounces
Resin	Dieuretic	4 to 6 dr'ms	½ to 1 oz
Soda Bicarbonate	Antacid, Dieuretic	4 to 6 dr'ms	4 to 8 dr'ms
Santonin	Vermifuge	1 to 3 dr'ms	
Squills	Dieuretic, Expectorant	½ dram	½ to 1 dram
Silver Nitrate	Nerve Tonic	5 grains	5 to 8 grs
Spigelia	Vermifuge	½ to 1 oz	1 to 2 oz
Strychnia	Nerve Tonic	1 to 2 grs	2 to 3 grs
Sulphur	Expectorant, Diaphoretic	3 to 4 oz	5 to 6 oz
Sweet Spirits Nitre	Stimulant, Anti-Spasmodic Dieuretic, Diaphoretic	1 to 2 oz	3 to 4 oz

NAME OF DRUG.	ACTION AND USE.	DOSE.	
		HORSES.	CATTLE.
Stramonium	Narcotic, Sedative	20 to 30 grs	½ to 1 dram
Sulphuric Acid	Tonic, Refrigerant, Caustic	1 dram	2 to 4 dr'ms
Tobacco	Sedative, Anti-Spasmodic, Vermifuge	4 drams	4 to 6 dr'ms
Tar	Expectorant, Antiseptic	½ to 1 oz	1 to 2 oz
Turpentine Oil	Stimulant, Anti-Spasmodic Dieuretic	1 to 2 oz	1 to 2 oz
Valerian	Stimulant, Anti-Spasmodic Vermifuge	2 ounces	2 to 4 oz
Veratrum	Sedative	1 scruple	½ to 1 dram
Wild Cherry Bark	Expectorant	1 ounce	1 to 1½ oz
Whisky, Brandy, Gin	Stimulant, Dieuretic, Narcotic	3 to 6 oz	6 to 12 oz
Zinc Carbonate	Astringent, Tonic	2 drams	2 to 4 dr'ms
Zinc Sulphate	Astringent, Tonic	1 to 2 dr'ms	2 to 3 dr'ms

INDEX.

HORSES.

Amputation of the Penis..... 64
Anæmia..... 16
Aneurism..... 67
Arthritis..... 107
Azoturia..... 17
Back, Sprain of..... 102
Bladder, Eversion of..... 40
Bleeding from the Nostrils..... 18
Bone Spavin..... 84
Bots..... 34
Bronchittis..... 20
Brain, Inflammation of..... 47
Broken Knees..... 95
Bruised Knees..... 95
Burns..... 57
Carpitis..... 97
Canker..... 68
Castration..... 62
Capped Hock..... 76
Choking..... 59
Chronic Roaring..... 19
Clap..... 40
Corns..... 67
Colds in the Head..... 18
Coronitis..... 72
Coronet, Inflammation of..... 72
Congestion of the Skin..... 51
Coffin-Joint Lameness..... 72
Cramps..... 10
Crib Biters..... 60
Curb..... 75
Cystitis..... 38
Cystic Calculus..... 40
Diarrhœa..... 31
Diabetes Insipidus..... 36
Distemper..... 7
Dysentery..... 32
Elbow Lameness..... 98
Enteritis..... 29
Epistaxis..... 18
Epizootic..... 8

Epilepsy 34
Erysipelas 55
Eversion of the Bladder 40
Eye, Inflammation of 42
Facial Paralysis 49
Farcy 15
Fetlock-Joint, Sprain of 92
Feet, Inflammation of 57
Fits, Falling 44
Fistulous Withers 62
Flatulent Colic 13
Founder 57
Glanders 15
Gonorrhœa 39
Grass Staggers 49
Grease Heel 51
Heaves 25
Hernia 65
Hock, Capped 76
Inflammation of the Bladder 38
" " Bowels 29
" " Eye 42
" " Joints 107
" " Kidneys 37
" " Knees 97
" " Lining of the Abdominal Cavity 33
" " Lungs 22
" " Mucous Lining of the Bowels 31
" " Testicles 41
Influenza 8
Intestinal Worms 35
Irregularities of the Teeth 80
Joint Open 105
Joint, Inflammation of 107
Kidneys, Inflammation of 37
Knees, Broken and Bruised 95
Knees, Inflammation of 97
Lampas 28
Laminitis 57
Laryngo Pharyngitis 20
Lips, Paralysis of 82
Lice 55
Lock-Jaw 45
Lung, Inflammation of 22
Lymphangitis 26
Lymphatics, Inflammation of 26
Mammitis 42
Mammary Glands, Inflammation of 41
Mange 53
Moon Blindness 43
Muco Enteritis 31
Nasal Catarrh 18
" Gleet 83
Nephritis 42

Nails, Pricks from 69
Navacular Disease 72
Opthalmia, Simple 42
Opthalmia, Periodic 43
Open Joint 105
Ozœna 83
Paralysis, Partial 17
" Facial 49
Patella, Dislocation of 88
Paraphymosis 64
Parrot Mouth 80
Penis, Amputation of 64
Peritonitis 33
Phrenitis 47
Phymosis 64
Pleurisy 22
Pneumonia 22
Poll Evil 51
Pricks from Nails 69
Quarter-Cracks 71
Quittor 70
Retention of Urine 38
Rheumatism 101
Rickets 108
Ring Bone 90
Roaring, Chronic 17
Rupture 65
Sand-Cracks 71
Scratches 51
Scalds 57
Sessamoiditis 72
Seedy Toe 67
Shoulder Slip 98
" Lamness 100
Side-Bones 74
Skin, Congestion of 51
Slavering 28
Sore Throat 20
Spavin, Bone 84
" Bog 87
Spasmodic Colic 10
Sprain of the Suspensory Ligament 93
Sprain of the Flexor Tendon 94
Spinal Cord, Inflammation of 48
Spinal Meningitis 48
Sprained Back 102
Strangles 7
Stomatitis 27
Stifle-Joint Lameness 88
Strain of the Fetlock Joint 92
String-Halt 104
Stump-Suckers 60
Stoppage of Water 38
Stone in the Bladder 40

Stomach Staggers..... 49
Sun Stroke..... 50
Sweeney..... 98
Swelled Gums..... 28
Synovitis..... 107
Teeth, Irregularities of..... 80
Testicles, Inflammation of..... 41
Teeth, Caries of..... 81
Tetanus..... 45
Throughpin..... 77
Thrush..... 68
Tumors..... 78
Urine, Retention of..... 38
Wind-Suckers..... 60
Wolf Teeth..... 82
Worms, Intestinal..... 35
Wounds, Contused..... 79
" Incized..... 79

CATTLE.

Catarrh or Cold..... 127
Chronic Indigestion..... 131
Choking..... 128
Clap..... 126
Colic..... 132
Conjunctivitis..... 134
Diarrhœa..... 113
Dysentery, Acute..... 115
Enteritis..... 136
Epizootic Aphtha..... 122
Eye, Inflammation of..... 134
Fardel Bound..... 139
Foot and Mouth Disease..... 122
Fits from Eating Buckeyes..... 128
Gonorrhœa..... 126
Grubs under the Skin..... 155
Gut Tie..... 155
Hæmaturea..... 124
Hepatitis..... 137
Hide-Bound..... 141
Hoven..... 117
Impaction of the Rumen..... 142
Intestines, Strangulation..... 155
Inversion of the Bladder..... 146
" " Vagina..... 147
Indigestion, Chronic..... 139
Kidneys, Inflammation of..... 119
Leucorrhœa..... 147
Lice..... 148
Liver, Inflammation of..... 137
Lungs " 144
Mamitis..... 152
Omassium, Impaction of..... 139
Patella, Dislocation of..... 135

Parturient Apoplexy....156
Pleuro Pneumonia Contagiosa....121
Pneumonia....144
Phrenitis....126
Pleurisy....144
Reticulum, Affections of....133
Rumen, Impaction of....142
Sore Teats....151
Splenic Apoplexy....154
Second Stomach, Affections of....133
Stifle-Joint, Dislocation of....135
Teats, Sore....151
Tongue, Ulcerated....113
Tympanitis....117
Udder, Inflammation of....152
Ulcerated Tongue....113
Urine Bloody....124
Ulcerous Cancers....125
Vagina, Inversion of....147
Warbles....155
Whites....147

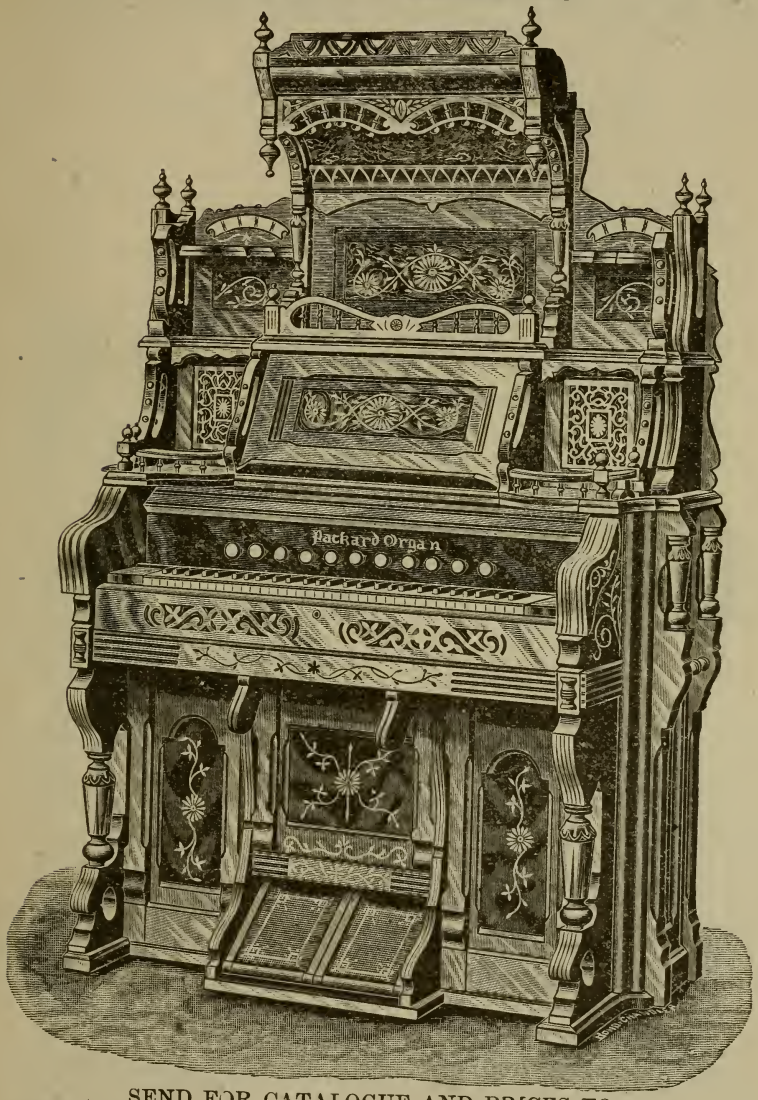
OBSTETRICS.

Afterbirth, Retention of....171
Anterior Presentation....182
Ascites....218
Bleeding from the Navel....178
Breast and Abdominal Presentation....212
Constipation Shortly after Birth....180
Deviation of the Head Upward and Backward....195
Deviation of the Hind Legs into the Genital Canal, the Anterior Part of the Body Presenting....198
Downward Deviation of the Head....190
Double Headed Monstrocities....216
Dropsy, Abdominal....218
Flooding....170
Fore Limb Crossed over the Neck....183
Fore Limbs Flexed at the Knees....185
Fore Limbs Completely Retained....187
Hernia of the Uterus or Womb....172
Hind Leg Deviation, Anterior Presentation....196
Hock Presentation....202
Hydrocephalus....217
Hygiene of Pregnant Animals....161
Inflammation of the Womb and Peritoneum....176
Inversion of the Womb....165
Labor Pains. Premature....167
Lateral Deviation of the Head to the Right or Left....192
Living Fœtuses in Different Presentations....214
Metro Peritonitis....176
Navel, Bleeding from....178
" Urine Passing from....178
Œdema in Pregnancy....165

Pains after Birth....168
Parturition and Pregnancy....165
Perineum, Rupture of....175
Persistence of the Urachus....178
Positions and Presentations of the Fœtuses....181
Posterior Presentations....200
Past Labor Pains....168
Post Portum Hæmorrhages....170
Pregnant Animals, Care of....163
Pregnancy, Dropsical Swellings in....165
Premature Labor Pains....167
Presentations and Positions of the Fœtuses....181
Retention of the Meconium....180
Retention of the Placenta....171
Rupture of the Navel....179
Rupture of the Perineum....175
Shoulder and Loin Presentation....209
Teeth....221
Thigh and Croup Presentation....205
Transverse Presentation....208
Umbilical Hernia....179
" Hæmorrhage....178
Urine Passing from the Favel....178
Uterus or Womb, Hernia of....172
Water on the Brain....217
Womb, Inversion of....165
Womb and Peritoneum, Inflammation of....176

PACKARD ORGAN.

IT HAS NO SUPERIOR.



SEND FOR CATALOGUE AND PRICES TO

Fort Wayne Organ Co.,

FORT WAYNE, IND.

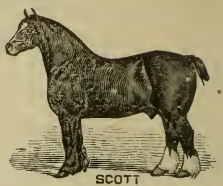
BROOKSIDE FARM CO.

FORT WAYNE, INDIANA.

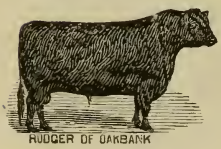
IMPORTERS AND BREEDERS

—OF—

Clydesdale Stallions!


SCOTT

AND


RUDGER OF OAKBANK

GALLOWAY CATTLE.

Have always on hand a good supply of the above breeds, of the finest quality that can be imported from Scotland and England. We have a resident buyer there who knows the best strains of blood and takes advantage of the market. This enables us to sell the best bred stock at prices that beat all competition. Terms as good as can be had in America

Address

DAVID McKAY, Sec'y,

BROOKSIDE FARM CO., FORT WAYNE, IND.

CLIFTON BOY

RECORD 2:29¼.

(Standard). Registered No. 5745. Vol VII, A. T. R.

Bred by W. C. BARNETT, Florence, Boone County, Ky.

SERVICES WILL BE OFFERED UNTIL

JULY 1st, 1888.

TERMS:

Forty Dollars, money due at time of service, with privilege of returning next season such mares as do not prove with foal. Mares from a distance kept on pasture at $4.00 per month; grain stabled at $8.00 per month. All accidents or escapes at owner's risk.

PEDIGREE:

CLIFTON BOY, 5945, record 2:29¼, sired by Strader's Hambletonian, (Squire Talmage, 668), dam Nellie Draco.
STADER'S HAMBLETONIAN, by (Rysdyke's Hambletonian, 10) dam by Seely's American Star,
RYSDYKE'S HAMBLETONIAN, (10) by Abdallah (1).
First dam, by Imported Bellfonder.
Second dam, by Bishop's Hambletonian.
Third dam, by Imported Messenger.
ABDALLAH (1), by Mambrino, dam Amazonia, by a son of Imported Messenger.
BISHOP'S HAMBLETONIAN, by Imported Messenger.
First dam, Imported Shark.
Second dam by Imported Medley.
SEELY'S AMER CAN STAR, by American Star.
First dam, by Sir Henry.
Second dam by Imported Messenger.
AMERICAN STAR, by Duroc, son of Imported Diomed, dam thoroughbred.
SIR HENRY, by Sir Archy, son of Imported Diomed.
First dam, by Imported Diomed.
Second dam, by Belair.
Third dam, by Pilgrim.
Fourth dam, by Imported Janus.

ADDRESS:

FRED. JONES,
305 W. Washington St.,

Dr. W. W. BARNETT.
425 S. Calhoun St.

FORT WAYNE, IND.

LIBRARY OF CONGRESS
0 002 843 255 0